FOR AGENDA

SM/06/244

July 11, 2006

To: Members of the Executive Board

From: The Secretary

Subject: **South Africa—Selected Issues**

This paper provides background information to the staff report on the 2006 Article IV consultation discussions with South Africa (SM/06/238, 7/10/06), which is tentatively scheduled for discussion on **Monday, July 31, 2006.** At the time of circulation of this paper to the Board, the Secretary's Department has not received a communication from the authorities of South Africa indicating whether or not they consent to the Fund's publication of this paper; such communication may be received after the authorities have had an opportunity to read the paper.

Questions may be referred to Mr. Lizondo (ext. 38650), Mr. Cuevas (ext. 34523), and Mr. Harjes, (ext. 36522) in AFR.

Unless the Documents Section (ext. 36760) is otherwise notified, the document will be transmitted, in accordance with the procedures approved by the Executive Board and with the appropriate deletions, to the WTO Secretariat on Wednesday, July 19, 2006; and to the African Development Bank, the European Investment Bank, the Food and Agriculture Organization, and the Organisation for Economic Cooperation and Development, following its consideration by the Executive Board.

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INTERNATIONAL MONETARY FUND

SOUTH AFRICA

Selected Issues

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Approved by African Department

July 10, 2006

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SOUTH AFRICA: BASIC DATA

Area:	1.22 million square kilometers
Population (2005 mid-year estimate)	46.9 million
Annual rate of growth	1.0 percent
IMF Position (May 31, 2006)	
Quota:	SDR 1,868.50 million
Fund holding of rand	SDR 1,867.66 million
Holdings of SDR	SDR 222.89 million
Exchange rate (end June)	US$1 =R7.14

	2002	2003	2004	2005
	(Annual percent change, unless otherwise indicated)			
National income, prices, and labor market				
Real GDP	3.7	3.0	4.5	4.9
Real GDP per capita	2.5	1.9	3.5	3.9
Nominal GDP (billions of rand)	1,169	1,257	1,387	1,523
GDP deflator	10.5	4.4	5.6	4.7
CPI (annual average)	9.2	5.8	1.4	3.4
CPIX (period average) [1]	9.3	6.8	4.3	3.9
Unemployment rate (in percent)	30.4	28.0	26.3	26.7
External sector				
Merchandise exports, f.o.b. [2]	2.6	21.6	25.0	13.5
Merchandise imports, f.o.b. [2]	4.6	30.1	38.1	17.0
Export (goods and services) volume	0.5	0.3	2.5	6.7
Import (goods and services) volume	5.1	8.8	14.1	10.1
Terms of trade	2.4	3.6	0.8	0.5
Nominal effective exchange rate [3]	-21.7	25.1	9.1	1.1
Real effective exchange rate [3]	-9.7	25.1	6.7	0.5
Money and credit				
Net domestic assets [4]	9.8	7.2	11.3	14.0
Broad money (including foreign exchange deposits)	18.1	12.9	13.1	19.9
Velocity (GDP/average broad money)	1.7	1.6	1.6	1.5
	(Percent of GDP, unless otherwise indicated)			
Investment and saving				
Investment (including inventories)	16.1	16.9	17.6	18.2
Gross national saving	16.7	15.6	14.2	14.0
National government budget [5]				
Revenue, including grants	23.3	23.3	24.2	25.9
Expenditure and net lending	24.5	25.3	25.9	26.5
Overall balance	-1.2	-2.0	-1.7	-0.6
Primary balance	2.9	1.7	1.8	2.7
National government debt	37.0	35.6	35.4	34.4
Borrowing requirement of the nonfinancial public sector	1.0	2.0	1.9	-0.3
External sector				
Current account balance	0.6	-1.3	-3.4	-4.2
Overall balance of payments	1.4	-0.4	2.7	2.2
Total external debt	29.7	23.0	20.2	19.3
Gross reserves (SARB, in billions of U.S. dollars)	7.6	8.0	14.7	20.6
(in months of total imports)	2.8	2.2	3.0	3.6
International liquidity position of SARB (in billions of U.S. dollars) [6]	-1.6	4.8	11.4	17.2
U.S. dollar exchange rate (end of period)	8.64	6.64	5.63	6.33

Sources: South African Reserve Bank (SARB); IMF, International Financial Statistics; and Fund staff projections.

[1] CPIX is the consumer price index (CPI) excluding the interest on mortgage bonds.

[2] In U.S. dollars; annual percent change.

[3] Annual average; Information Notice System (INS) definition.

[4] Contribution (in percentage points) to the growth of broad money.

[5] Calendar-year figures, based on National Treasury data.

[6] Gross reserves minus foreign loans and minus forward position. The SARB's open position in the forward market was closed in February 2004.

I. South Africa's Recent Growth Performance and Growth Targets in an International Perspective[1]

A. Introduction

1. **South Africa's economic performance has improved markedly over the past few years thanks to sound macroeconomic management, structural reforms and a benign external environment.** GDP growth reached almost 5 percent in 2005 and per capita income grew annually by 2.7 percent on average from 2000 through 2005. This was a significant step up from the 0.8 percent per capita annual average of the six-year period 1994-1999, that followed the end of apartheid.

2. **Higher growth is needed, however, to achieve the government's objectives of halving unemployment by 2014, and markedly reducing poverty and wealth disparities.** The government is now defining its new Accelerated and Shared Growth Initiative—South Africa (ASGISA). The main objective of this initiative is to raise economic growth to 6 percent by 2010; this implies a per capita growth rate of about 5 percent.

3. **This chapter analyzes a broad group of emerging market economies and discusses South Africa's recent growth performance, and its new growth targets.** Over the past 25 years, many emerging markets have experienced periods of high and sustained per capita growth that did not merely reflect recovery from a crisis. The relative frequency of these growth accelerations, as well as their average magnitude may be informative in evaluating the South African targets. Also, a look at features that characterized these episodes may prove useful to ASGISA.

B. Growth Accelerations

4. **South Africa's growth initiative (ASGISA) aims at distinctly higher, and sustainable growth.** Hausman, Pritchett and Rodrik's (2004) definition of a growth acceleration fits this targeted growth pattern well. They define it as a period during which an economy experiences relatively high per capita growth rates for several years at a noticeably higher level than in preceding years. Also, the income level has to be higher than the pre-episode peak to avoid identifying recovery from crisis as growth accelerations. In the empirical growth literature most studies, including Barro (1991) and Barro and Sala-i-Martin (1992), focus on cross-country econometrics regressing growth rates on country characteristics and policies. However, Hausman and others (2004) pointed out that identifying turning points (growth accelerations) in growth experience

[1] Prepared by Norbert Funke and Thomas Harjes with P. Leelapornchai.

and analyzing these transitions may prove more fruitful than analyzing general growth performance, which tends to be highly unstable (see Easterly and others, 1993), and also generates much noise at annual, or higher frequencies.

Box I.1. Technical Definition of a Growth Acceleration

Following Hausman, Pritchett, and Rodrik (2004) growth accelerations are identified by searching for rapid growth episodes that satisfy the following conditions:

$g_{t,t+n} \geq g^{high}$	(*Annual average growth of real GDP per capita is rapid.*)
$\Delta g_t \geq 2.0$	(*Growth accelerates.*)
$y_{t+n} \geq \max(y_i), i \leq t$	(*Postgrowth, real GDP per capita exceeds the pre-episode peak.*)

where g^{high} is set to 3.5 percent. The annual average growth rate $g_{t,t+n}$ at time t over horizon n is defined to be the least squares estimate growth rate of GDP per capita (y) from t to $t+n$, defined implicitly by:

$$\ln(y_{t+i}) = \alpha + g_{t,t+n} * (t+i), \quad i = 0,...,n$$

The change in the growth rate at time t is the change in the growth rate over horizon n across that period:

$$\Delta g_t = g_{t,t+n} - g_{t-n,t}$$

The relevant time horizon chosen is six years (i.e., n = 5) in order to fit in two full periods for South Africa (1994-1999 and 2000-2005) since democratization.[2] Such a time horizon should still be long enough to avoid capturing only the upswing of a business cycle. The time period is 1975-2005, and since n = 5, the earliest and latest years for which we can identify a growth acceleration are 1981 and 2000.

[2] Hausman, Pritchett and Rodrik (2004) use a time horizon of eight years. Also, we use real GDP per capita data in constant domestic currencies from the World Economic Outlook database whereas Hausman, Pritchett and Rodrik (2004) use the Penn World Tables that feature international GDP data in constant U.S. dollar prices. The results are, therefore, different for a few countries that appear in both studies.

5. **From 1981 to 2000, there were growth accelerations in many emerging market countries.** In our sample, we identified 14 growth accelerations (Table I.1).[3] On average across countries, growth per capita exceeded 5 percent a year during a growth acceleration. Chile, China, the Dominican Republic, Indonesia, Malaysia, and Thailand all experienced sustained periods of per capita growth that exceeded 5 percent. This shows that the South African growth target under ASGISA is not out of reach.

6. **The likelihood of experiencing a growth acceleration at some point in any given decade is about 27 percent for a country in our sample.** Following Hausman, Pritchett, and Rodrik (2004), the (unconditional) probability of a growth acceleration in our sample is estimated by dividing the number of episodes (14) by the number of country-years in which an episode could have taken place (444). The latter is calculated by summing up all the country-years in our sample and eliminating a 4-year window after the occurrence of each episode, since our filter takes this period as belonging to the same episode. This results in the average probability for a growth acceleration of about 3.2 percent per year.

Table I.1. Growth Accelerations and Recent Growth Performance

	Growth Acceleration (1981-2000)	**Average Growth (per capita)**			
		1994-1999	Rank	2000-2005	Rank
Argentina	-	1.8	14	0.7	23
Brazil	-	1.3	17	1.2	21
Chile	5.2 (1986)	4.0	4	3.1	6
China	10.0 (1983), 10.5 (1991)	8.6	1	8.6	1
Colombia	-	0.8	22	1.4	19
Dominican Republic	5.7 (1996)	4.8	2	2.4	15
Ecuador	-	-0.6	23	3.0	7
Egypt	4.6 (1982) 3.8 (1996)	3.3	7	2.0	17
El Salvador	-	2.8	10	0.1	25
Indonesia	4.9 (1987)	1.0	18	3.8	4
Lebanon	-	4.4	3	4.6	2
Malaysia	6.2 (1988)	3.3	8	2.9	9
Mexico	3.9 (1996)	1.6	16	1.2	20
Morocco	-	2.0	12	2.5	14
Nigeria	-	-0.7	24	2.5	13
Pakistan	-	0.8	21	2.9	10
Panama	-	2.9	9	2.0	18
Peru	-	3.4	5	2.4	16
Philippines	-	1.7	15	2.6	12
South Africa	-	0.8	20	2.7	11
Thailand	8.6 (1986), 3.9 (2000)	1.8	13	4.0	3
Tunisia	4.1 (1996)	3.3	6	3.3	5
Turkey	4.4 (1984)	0.8	19	2.9	8
Uruguay	3.7 (1984)	2.3	11	0.2	24
Venezuela, Rep. Bol.	-	-1.7	25	1.1	22

Note: The least squares estimates for trend growth g may differ slightly from average growth rates. referred to in the text.

[3] The 25 emerging markets in our sample all belong to the JP Morgan Emerging Markets Bond Index. Eastern European Countries that were in transition throughout most of the 1990s are not included.

7. **Some countries managed to sustain growth past the acceleration period.** Annual growth per capita in Chile, China, Indonesia, Malaysia, Thailand, and Uruguay remained above 3 percent on average for at least another six years after the initial growth acceleration period.

8. **Growth in South Africa has accelerated significantly over the past six years, but still fell somewhat short of the bar set by our technical definition of a growth acceleration.** For 2000 to 2005, average growth per capita was 2.7 percent, almost 2 percentage points higher than during the preceding six years. In our sample of 25 emerging markets, South Africa ranked 11th on growth performance for 2000-05, up from 20 for the previous six-year period, during which several other countries were affected by the Asian crisis.

9. **Growth accelerations in our sample did not generally coincide with a large increase in the investment-to-output ratio.** Young (1994) found that a fast pace of capital accumulation and strong increases in total hours worked and in labor skills (human capital investment) drove several high-growth episodes in Asian countries. Though most countries in our sample that experienced growth accelerations had relatively high investment-to-output ratios during the accelerations, they were generally not much higher than before the acceleration (Table I.2). This contrasts with Hausman, Pritchett, and Rodrik (2004), who found a significant increase in many cases in the investment-to-output ratio before a growth acceleration. This may, to a large extent, reflect the fact that their sample includes the 1960s and 1970s, when many fast-growing Asian countries saw a steep increase in gross investment-to-output ratios.

Table I.2. Average Investment-to-Output Ratios During Growth Accelerations

Capital Investment during Growth Accelerations

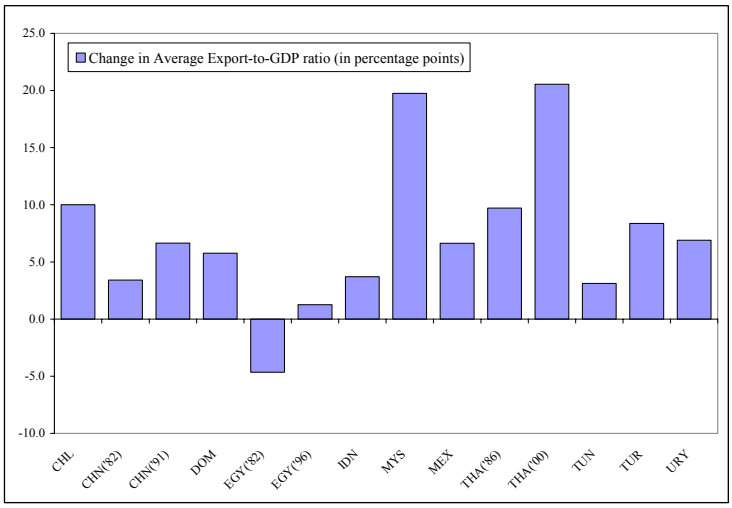
		Fixed Investment		Employment	
Country[1]		Average I/Y	Change in Average I/Y	Avg. Growth	Change in Avg. Growth
Chile	1986	23.0	7.0	4.20	1.49
China	1983	36.0	2.8	-	-
China	1991	38.4	1.9	-	-
Dominican Republic	1996	22.5	1.1	4.83	2.03
Egypt	1982	28.2	-7.8	-	-
Egypt	1996	19.2	-2.4	2.59	1.82
Indonesia	1987	40.2	5.9	-	-
Malaysia	1988	33.0	2.1	-	-
Mexico	1996	23.6	1.5	5.91	4.32
Thailand	1986	34.2	8.4	-	-
Thailand	2000	25.6	-7.5	2.19	2.17
Tunisia	1996	26.6	-2.0	2.68	-0.34
Turkey	1984	23.1	-0.4	-	-
Uruguay	1984	12.6	-3.1	-	-

Note: Investment refers to gross fixed capital formation. Average I/Y and employment growth refer to growth acceleration period, and the change compares these to the previous six-year period.

[1] Year in paranthesis refers to beginning of growth acceleration.

10. **Total employment, however, grew significantly faster in most countries during a growth acceleration.** The Dominican Republic, Mexico, and Thailand registered increases in their employment growth rates that exceeded 2 percentage points.[4] This is of particular interest for South Africa where the persistence of high unemployment is probably the most important impediment to poverty reduction.[5] Limited data availability renders difficult the analysis of other interesting questions including if growth accelerations were accompanied by labor migration from rural to urban regions, to more productive sectors, or if hours worked and skills changed significantly.

11. **Growth accelerations in emerging markets were mostly accompanied by a marked increase in export-to-GDP ratios, underlining the importance of trade for growth.** Growth accelerations seem to have been export-led, especially in smaller countries. Trade, and correspondingly export-to-GDP ratios, generally have risen faster than total output in many countries over the past decades. Emerging markets that underwent sustained growth accelerations, witnessed a significant increase, 7 percentage points on average, in their export-to-GDP ratios compared to the previous six-year period.



12. **The importance of trade and export activity for sustaining growth accelerations has been highlighted in other studies.** Johnson, Ostry, and Subramanian (2006) point out that countries with sustained high growth rates generally had great success in manufacturing exports.[6] Though they found clear two-way causality between exports ratios and growth, to the extent that early rapid export growth was a proximate cause, that would raise questions about the policy choices that facilitated this growth. They list trade liberalization, avoidance of exchange rate overvaluation, and policies

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[4] For many countries, historical employment data for the 1970s and 1980s are not available.

[5] In a growth accounting framework, Arora (2005) calculates that real GDP growth per capita in South Africa could exceed 5 percent if the unemployment rate, currently at about 27 percent, were reduced such that annual employment growth exceeded growth in the labor force by about 2 percentage points.

[6] Patillo, Gupta and Carey (2006) analyze growth accelerations in sub-Saharan Africa and find that separating accelerations that were sustained from those that were not reinforces the role of trade.

promoting access to economic opportunities as possible candidates. While it was true that some countries with sustained high growth did not liberalize their imports, they note, the weight of the evidence pointed in a different direction, as the examples of Indonesia, Korea, Malaysia, Singapore and the Taiwan Province of China show. Even countries with relatively restrictive import regimes, such as China and Vietnam, moved to create a level playing field for manufacturers of exports. Avoidance of overvaluation, which could have played a role in the growth of manufactured exports, may have been related government success in avoiding macroeconomic instability. Although many countries started their growth episodes with weak political institutions, these seem to have improved over time leading to better economic opportunities, such as educational attainment, and lowering risks, such as expropriation.

13. **It has proven difficult, however, to identify specific policies that may have caused a growth acceleration.** Hausman, Pritchett, and Rodrik (2004) find that most growth accelerations are not accompanied by major changes in economic policies, institutional arrangements, political circumstances, or external conditions. Standard growth determinants have some statistical leverage over the timing of accelerations, but on the whole those determinants do a very poor job of predicting the turning points. They conclude that growth accelerations seem to be caused predominantly by idiosyncratic, and often small-scale changes.

14. **Identifying the most binding constraints on economic activity in South Africa may prove a successful strategy for unlocking the door to higher, sustained growth.** Hausman, Rodrik and Velasco (2005) present a framework for growth diagnostics to identify the most binding constraints on economic growth. Policies that are targeted to these constraints are likely to boost growth most. ASGISA is clearly a step in this direction. At present, the government group in charge of this initiative has identified six major constraints:[7]

- **The level and stability of the exchange rate (**its impact on exports as a part of the growth strategy is mentioned as a concern)
- **Infrastructure and logistics (**high cost and low efficiency, in particular for freight transportation and telecommunication)
- **Skills shortages**
- **Barriers to entry and competition** in several key economic sectors
- **Regulatory environment (**particularly the burden on small and medium enterprises)
- **Capacity limitations,** and shortcomings in state organization and strategic leadership.

[7] See 2006 Budget Speech.

15. T**hough bottlenecks in infrastructure and logistics may particularly hamper trade activities,**[8] **the tariff regime continues to penalize many export activities and protect certain import-competing sectors;** it very likely poses another important binding constraint on economic activity.[9] The importance of the export sector for growth accelerations would seem to warrant greater trade liberalization.

C. Conclusion

16. **South Africa's growth performance has improved substantially since the end of apartheid**. While growth was somewhat subdued from 1994 to 1999, when the economy was stabilized in the face of a difficult external environment, economic activity accelerated steadily during the following six-year period, reflecting the dividends of successful reforms and more favorable external conditions. The experience of many other emerging markets shows that the transition to the even higher sustained growth path, targeted under ASGISA, is possible. While it is difficult to empirically pin down specific policies that may have caused growth accelerations and a surge in export activities, it is still worthwhile to analyze in any specific case, what could be promising policies. In this respect, ASGISA aims at identifying the most binding constraints on economic activity in South Africa to determine policy priorities. The importance of a setting conducive to strong export performance, like that observed in most growth accelerations, makes a strong case for also considering greater trade liberalization.

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[8] Section II of the selected issues paper analyses the effect of exchange rate volatility on trade in South Africa and does not find any significant impact.

[9] Edwards (2005) concludes that the tariff structure in South Africa is still complex, with too many tariff bands and domestic spikes. He also points out that tariff protection declined no faster in South Africa than in other developing or middle-income countries.

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II. Exchange Rate Volatility in South Africa[1]

A. Introduction

1. **In defining its new Accelerated and Shared Growth Initiative for South Africa (ASGISA), the South African government group overseeing the initiative listed exchange rate volatility as a possible major impediment to higher growth.** Over the past decade, South Africa has had several episodes of high exchange rate volatility. The 2006 budget speech mentions that the volatility of the exchange rate and its impact on exports deserves more analysis.

2. **Theoretically, exchange rate volatility can affect growth through both trade and other channels.**[2] Increased trade can have a number of positive impacts on growth. According to Grossman and Helpman (1991), trade may cause a country to (i) use a larger variety of intermediate goods and capital equipment, which could enhance the productivity of its other resources; (ii) acquire technology developed worldwide, especially embodied in capital goods; (iii) increase the variety of consumer goods; and (iv) improve efficiency in the use of resources, which can induce a change in market structure and reduce markups. Jonsson and Subramanian (2000) find a robust significant positive effect of increased trade on total factor productivity growth in South Africa in the 1990s.

3. **The general presumption that trade is adversely affected by high exchange rate volatility does not necessarily hold in all economic models; specific assumptions are required.** For instance, as Clark and others (2004) point out, it is usually also assumed that:

- There are no hedging possibilities either through the forward exchange market or through offsetting transactions. In South Africa, where the forward exchange market is well developed, capital account restrictions limit the extent to which firms can access it.

- If firms can adjust factor inputs only with some lag, exchange rate volatility could negatively affect trade.

- Engagement in international trade usually causes firms to incur fixed costs that may create some inertia in their decisions to enter and exit international markets. The degree of this inertia would increase with higher exchange rate volatility.

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[1] Prepared by Thomas Harjes and Kazuko Shirono.

[2] For instance, exchange rate volatility may affect growth through its impact on foreign direct investment, but empirical evidence is mixed. See Kiyota and Urata (2004).

4. **To understand the relationship between exchange rate volatility and trade in a general equilibrium framework it is necessary to understand the interaction of all major economic variables.** Here a structural shock that affects the exchange rate may lead to changes in other macroeconomic variables that offset the effect on trade of the change in the exchange rate. Especially in countries that are often hit by significant terms of trade shocks, adjustments in the exchange rate, perceived as high volatility, may actually act as automatic stabilizers that help the economy adjust trade flows more smoothly. Broda (2001) shows that flexible exchange rates insulate economies from terms of trade shocks far better, but the benefit comes at the expense of a more volatile real exchange rate.

5. **Studies have found only a weak link between trade flows and exchange rate volatility.** Clark and others (2004) analyze the effect of exchange rate volatility on bilateral trade flows for a large group of countries (Box II.1). They confirm the findings of previous studies that exchange rate volatility has a small but statistically significant negative effect on trade. The effect, however, is not robust to alternative ways of controlling for factors other than exchange rate volatility.

Box II.1. The Impact of Exchange Rate Volatility on Bilateral Trade Flows

Clark and others (2004) use the gravity equation model to estimate the effects of exchange rate volatility on bilateral trade flows. This is the standard approach used in the empirical literature to estimate the effects of various trade costs on trade flows. It models trade between two countries as a function of the incomes of the two countries and the distance between them. It has been very successful in explaining bilateral trade flows in a variety of applications. Moreover, the gravity model has solid theoretical foundations (see Anderson, 1979; Deardorff, 1998; and Anderson and van Wincoop, 2003, for example). In addition to incomes and distance, the empirical specifications of the gravity model typically control for other factors that may enhance or reduce trade between two countries, such as cultural linkages, historical relations, and geographic locations.

Following the panel specification in Rose (2004), Clark and others (2004) regress the log of aggregate bilateral trade on numerous explanatory variables, including the log of income of the bilateral pair, the log distance between the pair, and a measure of exchange rate volatility. The estimation is conducted using ordinary least squares with robust standard errors. Their data set covers the bilateral trade of 178 IMF member countries for every fifth year from 1975 to 2000. As a measure of exchange rate volatility, Clark and others use the standard deviation of log changes of the monthly bilateral real exchange rate calculated over five years using IFS data on nominal exchange rate and consumer prices. The study also considers alternative measures of volatility, such as nominal exchange rate volatility and the conditional volatilities estimated from GARCH regressions, to check the robustness of the results.

Clark and others (2004) confirm the findings of previous studies that exchange rate volatility has a statistically significant small negative effect on trade: If exchange rate volatility were to rise by one standard deviation, bilateral trade would fall by 7 percent. However, this effect does not hold up against variations in specifications. Different measures of exchange rate volatility do not yield robust results, either. Clark and others conducted separate analyses for homogeneous products and differentiated products and found a negative effect of exchange rate volatility on trade in differentiated products. However, this effect also does not stand up to the ways of controlling for variables other than exchange rate volatility. They conclude that there is no strong rationale for taking policy measures to restrict exchange rate movements in an attempt to promote trade flows.

6. **This chapter looks at the history of exchange rate volatility in South Africa, compares it to volatility in other countries,** and examines the relationship between volatility and trade flows in South Africa using disaggregate import and export data.

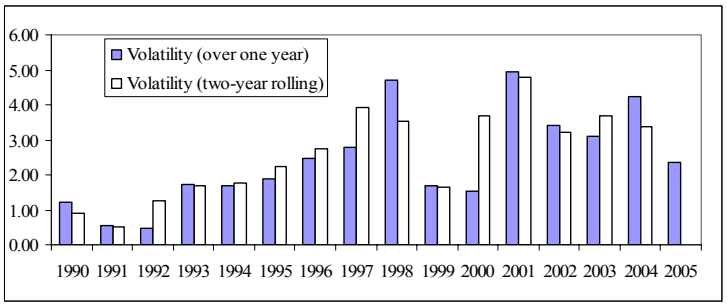
B. Recent History

Measuring Exchange Rate Volatility

7. **Exchange rate volatility is defined as the standard deviation of changes in the log of the monthly real effective exchange rate.** Exchange rates measured in real terms are appropriate on theoretical grounds, but nominal exchange rate is also sometimes used, given the stickiness of domestic prices (at least in the short run). The use of the standard deviation of percentage changes implies that a constant trend in the exchange rate does not affect this measure. Other measures of exchange rate volatility that have been employed include the standard deviation of the level of the nominal exchange rate, the standard deviation of percentage changes of the nominal exchange rate, and measures that try to isolate the unforecastable component of exchange rates by conditioning volatility on historical information. We use the real effective exchange rate to calculate the benchmark measure of exchange rate volatility.

8. **Over the past decade, South Africa experienced several episodes of high exchange rate volatility (Figure II.1).** In 1998, the rand came under severe pressure, and by the end of the year, the real effective exchange rate had depreciated by 15 percent; similar pressure in 2001 brought it down by 25 percent. While the 1998 drop was associated with the Asian crisis, the causes for the drop in 2001 are unclear. In both years, the sharp depreciation also led to a sizable increase in volatility, though since 2001, volatility has somewhat abated. A similar pattern was observed for alternative measures of volatility using nominal and real exchange rates against the US dollar (not reported here).

Figure II.1. Volatility of the Real Effective Exchange Rate in South Africa, 1990-2005[3]



[3] Volatility is measured as the standard deviation of monthly changes in the real effective exchange rate. Colored columns show exchange rate volatility calculated over one year, and white columns show volatility for overlapping two-year rolling periods (*t* and *t+1*).

9. **Exchange rate volatility in South Africa has been relatively high compared to other countries.** Two groups of countries are used as comparators: (i) inflation targeters, and (ii) other emerging markets. South Africa's real effective exchange rate has been more volatile than the currencies of other inflation-targeting countries, especially from 2000 to 2005. Compared to other major commodity exporters in this group, such as Australia, Chile, or New Zealand, South Africa's exchange rate volatility also looks quite high. There are, however, other emerging market economies—Brazil, Indonesia, and Turkey, for instance—where exchange rate volatility is higher.

Table II.1. Volatility of the Real Effective Exchange Rate in Inflation-Targeting Countries

1990-2005		1995-99		2000-05	
Average	2.60	Average	1.97	Average	2.07
Median	1.93	Median	1.66	Median	1.77
Romania (2005)	10.79	Romania	4.48	Colombia	4.55
Colombia (1999)	3.37	Philippines	3.12	**South Africa**	**3.64**
Poland (1998)	3.12	**South Africa**	**2.92**	Poland	2.50
South Africa (2000)	**2.85**	Colombia	2.87	Chile	2.37
Philippines (2002)	2.52	Australia	2.17	Iceland	2.13
Czech Republic (1998)	2.40	Israel	2.08	Australia	2.09
Australia (1993)	2.12	Poland	1.90	New Zealand	1.98
Chile (1999)	2.11	Chile	1.67	Philippines	1.85
New Zealand (1990)	1.75	Czech Republic	1.66	Israel	1.69
Israel (1997)	1.73	New Zealand	1.56	Romania	1.63
Sweden (1993)	1.63	Sweden	1.53	Hungary	1.62
Hungary (2001)	1.60	United Kingdom	1.47	Norway	1.52
United Kingdom (1992)	1.55	Canada	1.24	Czech Republic	1.51
Iceland (2001)	1.49	Norway	1.11	Canada	1.45
Canada (1991)	1.39	Hungary	1.07	Sweden	1.35
Norway (2001)	1.23	Iceland	0.67	United Kingdom	1.20

Note: The numbers in parentheses indicate years in which an inflation target was adopted. Volatility is measured as the standard deviation of changes in the log level of the monthly real effective exchange rate for each year.

10. **High exchange rate volatility does not seem to have had any systematic effect on trade in South Africa.** Figure II.2 shows the volatility of the real effective exchange rate, with total trade defined as the sum of the volumes of exports and imports.[4] While a simple data plot does not necessarily reveal a causal relationship between the two variables, no clear decline in trade is observed in the major episodes of heightened volatility in 1998 and 2001.

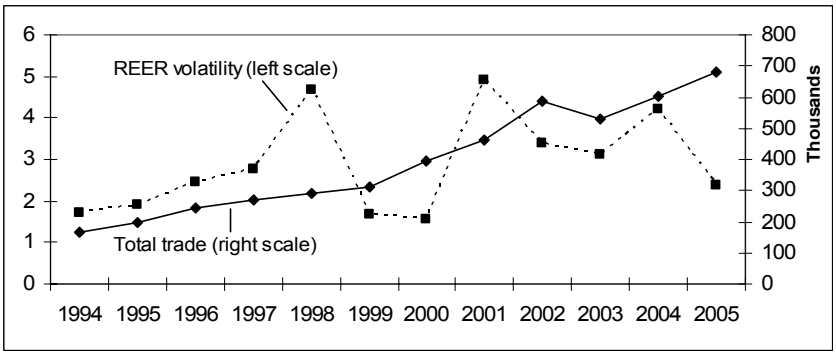
[4] Data on trade, import index, and export index were obtained from Datastream. Trade data are in the local currency and deflated by export/import deflators.

Table II.2. Volatility of the Real Effective Exchange Rate in Selected Emerging Markets

1990-2005		1995-99		2000-05	
Average	3.62	Average	3.55	Average	3.01
Median	2.85	Median	2.55	Median	2.37
Nigeria	8.07	Indonesia	12.16	Turkey	9.04
Turkey	7.49	Nigeria	11.93	Argentina	6.08
Indonesia	7.19	Turkey	7.92	Brazil	5.53
Argentina	5.88	Ecuador	6.14	Venezuela	5.22
Peru	5.76	Venezuela	5.94	Colombia	4.55
Brazil	5.69	Mexico	5.69	Dominican Republic	4.49
Venezuela	5.03	Brazil	4.70	Ecuador	3.82
Ecuador	4.49	Thailand	4.38	Indonesia	3.74
Lebanon	4.03	Malaysia	3.35	Uruguay	3.69
Mexico	3.60	Philippines	3.12	**South Africa**	**3.64**
Colombia	3.37	**South Africa**	**2.92**	Egypt	3.15
Dominican Republic	3.34	Colombia	2.87	Nigeria	2.83
South Africa	**2.85**	Pakistan	2.55	Chile	2.37
Uruguay	2.77	Lebanon	2.32	Lebanon	2.30
Thailand	2.58	Chile	1.67	Mexico	1.98
China	2.57	Peru	1.65	Philippines	1.85
Philippines	2.52	Egypt	1.43	Pakistan	1.67
Egypt	2.51	Uruguay	1.33	Peru	1.47
Malaysia	2.17	Argentina	1.25	Morocco	1.46
Chile	2.11	China	1.19	Tunisia	1.30
Pakistan	1.97	Dominican Republic	1.07	China	1.26
Morocco	1.33	El Salvador	0.88	Malaysia	1.25
El Salvador	1.32	Morocco	0.74	Thailand	1.05
Tunisia	1.02	Panama	0.73	El Salvador	0.84
Panama	0.73	Tunisia	0.71	Panama	0.70

Note: Volatility is measured as the standard deviation of changes in the log level of the monthly real effective exchange rate for each year. Selected countries all belong to the JP Morgan EMBI. The list does not include Eastern European countries that were in transition throughout most of the 1990s.

Figure II.2. REER Volatility and Total Trade



C. A Disaggregated View

11. **Changes in exchange rate volatility have been negatively correlated with the *growth rate* of trade flows in South Africa.** Figures II.3 and II.4 plot the volatility of the real effective exchange rate with the growth rates of both exports and imports. These figures

show that growth in trade flows tends to be lower when exchange rate volatility is higher. This tendency is more pronounced in exports; the correlation between exchange rate volatility and export growth is -0.66, while the correlation for import growth is -0.13. To examine whether this negative relationship between trade growth and exchange rate volatility is statistically significant, we conducted a statistical analysis.

Figure II.3. REER Volatility and Export Growth

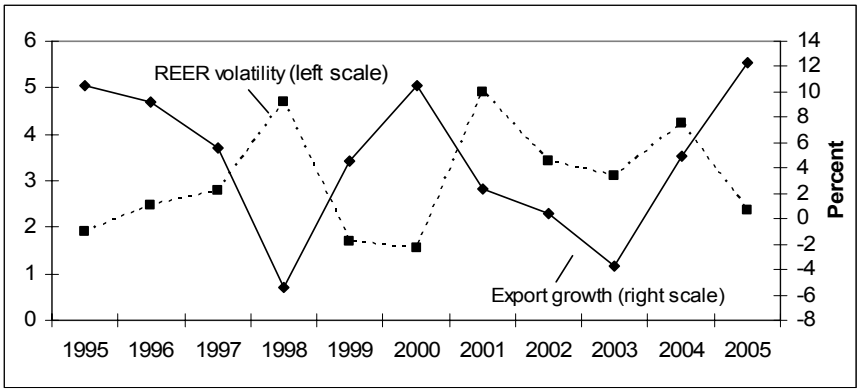
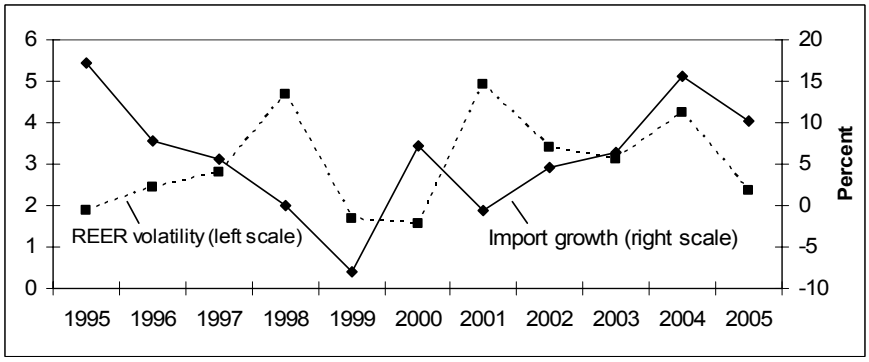


Figure II.4. REER Volatility and Import Growth



12. **Though a regression analysis that uses disaggregated data confirms the negative relationship between exchange rate volatility and growth in trade flows, it also shows that the effect is not statistically significant.**[5] Tables II.3 and II.4 summarize the regression results of three different specifications for export and import growth. The dependent variable is percentage changes in exports and imports, and the variables were regressed on the volatility of the real effective exchange rate (see Box II.2 for details on data and methodology).

[5] The regression analysis is based on annual exports and imports data from 1998 to 2005 of thirteen sectors (see Appendix).

13. **Specification (1) is a pooled regression.** Both export and import equations show a large and negative effect of exchange rate volatility on the growth rates of exports and imports, but the estimates are not statistically significant.

14. **Specification (2) introduces additional explanatory variables, namely external demand growth in the export equation and domestic demand growth in the import equati**on. Coefficients for external and domestic demand are both expected to be positive. In the export equation, external demand growth is negative but insignificant. In the import equation, on the other hand, the coefficient for domestic demand is positive and statistically significant—but the estimate on exchange rate volatility is still insignificant.

15. **Specification (3) controls for lagged exchange rate volatility.** In the export equation, lagged volatility is positive but not statistically significant. The estimate of exchange rate volatility becomes somewhat smaller but remains insignificant. In the import equation, domestic demand is significant, but exchange rate volatility turns positive with no statistical significance. In general, the relationship between exchange rate volatility and trade growth seems at best unstable.

Table II.3. Regression Results for Export Growth

	(1) OLS	(2) OLS	(3) OLS
REER volatility	-0.87	-1.01	-0.57
	(1.18)	(1.41)	(1.56)
REER volatility (-1)			0.81
			(1.23)
External demand growth		-0.41	0.12
		(2.27)	(2.42)
Constant	6.78	8.40	2.77
	(3.86)*	(9.70)	(12.96)
Obs.	91	91	91
R2	0.006	0.006	0.011

Notes: Standard errors are in parentheses. The dependent variable is percentage changes in exports.
* indicates statistical signiticance at the 10 percent level.
External demand growth is measured as the weighted average of growth rate of trade partners.

Table II.4. Regression Results for Import Growth

	(1) OLS	(2) OLS	(3) OLS
REER volatility	-0.62	-0.27	0.10
	(1.39)	(1.34)	(1.41)
REER volatility (-1)			1.18
			(1.30)
Domestic demand growth		4.94	4.98
		(1.75)***	(1.75)***
Constant	6.45	-12.55	-17.81
	(4.53)	(8.03)	(9.90)*
Obs.	91	91	91
R2	0.002	0.084	0.093

Notes: Standard errors are in parentheses. The dependent variable is percentage changes in imports.
* indicates statistical significance at the 10 percent level. *** indicates statistical significance at the 1 percent level.
Domestic demand growth is measured as real GDP growth rate.

Box II.2. Data and Methodology

In the regression analysis, exchange rate volatility is measured as the standard deviation of monthly log changes in the real effective exchange rate over one year. The data on the real effective exchange rate are from the South African Reserve Bank. The sample period is 1998 to 2005. Sectoral data on South African exports and imports were obtained from Datastream. After the export and import data are deflated, the real trade growth rates are calculated. Sectors whose share in total trade exceeds 1 percent are included in the regression analysis (see the Data Appendix for the list of sectors in the sample). In the export equation, external demand growth is measured as the weighted average of the real GDP growth rates of all the export partners. In the import equation, domestic demand growth is measured as South African real GDP growth rate. For both equations the data are taken from the World Economic Outlook database.

The regression analysis was conducted using ordinary least squares. Despite the panel structure of our data set, we did not pursue panel data estimation because controlling for sector-specific effects does not affect our estimate of exchange rate volatility. Because exchange rate volatility does not vary by sector, taking account of sector-specific effects will not affect the estimated coefficient for exchange rate volatility even though they may account for different *intercepts* across sectors. The estimation results of a fixed effects and a random effects model (not reported) indeed show that both produce results identical to those from specification (1) in Table II.3 and II.4. Since we are interested in the estimate of coefficient for exchange rate volatility, we adopt alternative specifications, as in the tables, not the panel specifications.

16. **Evidence from disaggregated sectoral data seems to confirm that there is no significant linkage between exchange rate volatility and trade flows in South Africa.** We have plotted exchange rate volatility and trade growth for major export and import sectors (not reported here) to further investigate how exchange rate volatility affects trade flows at the disaggregated sector level.[6] The simple sector data plots are consistent with the findings from the regression analysis. The plots suggest that the two variables appear to have a loose negative correlation, but it is difficult to detect a systematic pattern.

D. Conclusion

17. **During several episodes of high exchange rate volatility over the past decade, South Africa's exchange rate has been more volatile than that of other economies.** That has raised concerns about possible adverse effects on growth. While exchange rate volatility may affect growth in a number of ways, this section looked at the possible link through trade. We found no clear linkage in the South African data between exchange rate volatility and trade. An implication of this finding is that there is no strong rationale for taking policy

[6] Since there are only seven data points at the sectoral level, we did not pursue a regression approach.

measures to restrict exchange rate movements in an attempt to promote trade flows. Exchange rate volatility in itself is not necessarily harmful to an economy. On the contrary, exchange rate movements can help the economy adjust more smoothly to significant terms of trade shocks. As far as trade is concerned, it is important to take this general equilibrium consideration into account in assessing the impact of exchange rate volatility.

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Appendix

Sectors included in export growth regressions:

Live animals and animal products
Base metals and base metal articles
Chemical and allied industries products
Machinery, mechanical, and electrical appliances
Mineral products
Plastic and rubber articles
Prepared foodstuffs, beverages, and tobacco
Semiprecious stones and jewelry
Textiles and textile products
Vegetable products
Vehicles and other means of transport
Wood and wood products
Wood pulp, paper, and paper products

Sectors included in import growth regressions:

Base metals and base metal articles
Chemical and allied industry products
Machinery and mechanical and electrical appliances
Mineral products
Optical and precision instruments, watches and clocks
Plastic and rubber articles
Prepared foodstuffs, beverages, and tobacco
Semiprecious stones and jewelry
Stone, plaster, cement, ceramics, and glass products
Textiles and textile products
Vegetable products
Vehicles and other means of transport
Wood pulp, paper, and paper products

III. International Reserves Adequacy in a Comparative Perspective[1]

A. Introduction

1. **South Africa has accumulated significant international reserves in recent years**. Between end-1996 and end-2005 gross international reserves (GIR) increased from US$2.2 billion to US$20.6 billion. During the 2005 Article IV consultation, the authorities indicated that they intended to continue to build up reserves. By end-May 2006, GIR were over US$24 billion.

2. **Conceptually, reserves act as a shock absorber because they can be used to smooth out the effect on domestic absorption of external shocks** (Lizondo and Mathieson, 1987). They can also help deter runs on a country. The buffer stock model (Frenkel and Jovanovic, 1981, hereafter FJ) suggests that central banks choose an optimal level of reserves to balance the macroeconomic adjustment costs incurred when reserves are insufficient with the opportunity cost of holding them. Among practical indicators of reserve adequacy are ratios of reserves to imports or to financial variables such as broad money or short-term external debt. Empirical models examine the significance of the determinants of reserves, and some of them attempt to calculate the optimal level.

3. **This chapter is not aiming to produce the "right number" for the level of reserves**. As suggested by Gordon (2004) in the case of New Zealand, the exercise intends to build on the existing literature and conduct an empirical analysis that could help make a broad judgment on the adequacy of the level of South Africa's reserves. The analysis does not deal with the processes of adjusting between actual and desired levels, nor does it deal with issues of management or currency composition of reserves.

4. **The contribution of this chapter to the literature is to explain South Africa's reserves holding while highlighting how the Asian crisis has affected precautionary reserves accumulation**. The results suggest that after the Asian crisis, emerging market economies stepped up their reserves accumulation. For South Africa, the findings suggest that the level of reserves at end-2005 is broadly in line with the level predicted by the econometric analysis.

5. **The remainder of the chapter is structured as follows**. Section B briefly reviews the literature on reserves adequacy. Section C highlights some stylized facts on reserves holding. Section D presents an empirical analysis leading to the selection of a model that seems useful in assessing the adequacy of South Africa's reserves. Section E concludes by examining the implications of the analysis.

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[1] Prepared by Mwanza Nkusu (PDR).

B. Literature Review

6. **There is a large body of literature on assessing reserves adequacy.** The literature uses two distinct, albeit related lines of reasoning. The first is based on benchmark measures of reserves scaled by a number of variables that are considered indicators of the type of external vulnerability a country faces. The second uses econometric models in which some of the scaling variables associated with the first are used as explanatory variables.

7. **While reserves continue to play the role of absorber, the type of shock countries ought to prepare for has evolved along with changes in international financial markets**. Previously, reserves adequacy was primarily assessed in terms of current account vulnerabilities. The financial crises of the 1990s brought to light the importance of considering vulnerability to both current and capital account shocks. Since then, reserves adequacy has evolved from the earlier measure of import cover to coverage of aggregates indicating vulnerability to capital outflows from both non-residents and residents.

8. **The set of explanatory variables used in the determination of the demand for reserves has been expanded**. Earlier models used such indicators as a country's size, its current account vulnerability, and the opportunity cost of holding reserves. More recent models have added indicators of capital account vulnerability. Real GDP, real per capita GDP, and even population[2] are used as indicators of economic size (Lane and Burke, 2001; Edison, 2003; Aizenman and Marion, 2004). Among the indicators used to reflect current account vulnerability are measures of trade openness and volatility of export proceeds. Indicators of capital account vulnerability include measures of financial openness and financial depth to reflect risks of capital flight from both non-residents and residents. The risk of capital flight by non-residents is reflected by ratios of short-term debt or capital flows to GDP; the risk of capital flight by residents is reflected by broad money-to-GDP ratio.

9. **The research findings have been broadly consistent with the predictions, though with some differences that could emanate from differences in model specification.** It is hypothesized that the level of reserves is positively correlated with all the indicators of economic size and current and capital account vulnerability mentioned above. Studies that have used these variables, have generally confirmed their positive correlation with reserves (Edison, 2003; Aizenman and Marion, 2004; Aizenman and Lee, 2005), though Edison (2003) does not find support for the significance of capital account vulnerability indicators.

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[2] There appears to be little economic intuition behind the use of population as a determinant of economic size as far as reserves holding is concerned. Its use in some earlier research seems to have been driven by political economy considerations. The idea is that countries with large populations are inclined to hold more reserves for precautionary motive to prevent adverse socio-political implications of potential large adjustments in absorption should reserves be depleted. Empirical analyses have confirmed the importance of population, with no particular outlier effects from highly populated countries such as China and India (Aizenman and Lee, 2005).

Also, Aizenman and Marion (2004) find that the volatility of real exports is not significant. Aizenman, Lee, and Rhee (2005) who examine the importance of hypothesized determinants of reserves for Korea by distinguishing the pre- from the post-crisis periods, find that the crisis altered the importance and significance of most variables.[3] They find trade openness to be significant before and insignificant after the crisis. Also, in some regressions, the volatility of export proceeds and foreigners' equity position are not significant before the crisis but become so after. Moreover, the coefficient on short-term external debt, which is negative and not significant before the crisis, becomes positive and significant after. The structural break in the demand for reserves is in line with the significant shifts in the demands for reserves after the collapse of the Bretton Woods system in the early 1970s and in the aftermath of the debt crisis of the 1980s documented in Lizondo and Mathieson (1987). It has relevance not only for Korea but also for emerging markets at large in light of the significant increase in reserves after the Asian crisis.

10. **While the literature suggests also that the exchange rate regime is among the determinants of reserves holding, the findings are mixed.** A floating or more flexible exchange rate is supposed to reduce the demand for reserves. A related idea is that an overvaluation of the real exchange rate, which would generally be associated with less flexible exchange rate regimes, increases the probability of a crisis, and thus the need for reserves.[4] This idea is explored in models that derive the optimal level of reserves by explicitly considering the cost of holding reserves and the expected benefits (Jeanne and Rancière, 2005; Garcia and Soto, 2004). Jeanne and Rancière (2005, Table 7) estimate that moving from a floating to a fixed exchange rate regime or moving from no overvaluation of the real effective exchange rate (REER) to an overvaluation of 20 percent increases the probability of a crisis, leading to an increase in optimal reserves of up to 4 percentage points of GDP. In econometric models that include exchange rate volatility as an explanatory variable, the findings have been mixed. Edison (2003) finds a negative and significant impact, while Aizenman and Lee (2005) and Aizenman, Lee, and Rhee (2004) find different results for different specifications—insignificant, positive and significant, and negative and significant.

11. **The opportunity cost of holding reserves has not proven to be significant in explaining reserves holding**. Except for Ben-Bassat and Gottlieb (1992) who find a negative and significant impact of the opportunity cost on reserves holding and some studies that have attempted to replicate the FJ findings (Flood and Marion, 2002), the impact of the

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[3] They find that real GDP does not seem to play an important role in either period, which they considered not surprising because the reserves measure they use is already scaled by GDP.

[4] As reserves have been found to be negatively associated with exchange rate volatility (Hviding, Nowak, and Ricci (2004)), the relationship is bidirectional.

opportunity cost has not been found significant. This may be explained by the difficulty of identifying adequate measures of opportunity cost (Wijnholds and Kapteyn, 2001). Because of the documented non-significance, many studies have simply excluded opportunity cost as an explanatory variable.

C. Stylized Facts on Reserves Holding

12. **Though South Africa's gross reserves have increased significantly in recent years, the upward trend is not unique to South Africa.** The trend applies to emerging market countries (EMC) in general and also to some of the five inflation targeters whose indicators are presented in Table III.1.[5] Among inflation targeters, all except the Philippines have risk characteristics—as measured by the EMBI spread—similar to South Africa's. Their EMBI spreads, as of end-April 2006, was within the 70 to 85 basis points range.

Table III.1. Gross international Reserves in Selected Emerging Market Economies (1996-2005)

	1996	1999	2001	2004	2005	1996	1999	2001	2004	2005
	(Billions of US dollars)					(Percent of GDP)				
EMC group[1]	500.3	584.9	713.7	1,557.9	1,957.3					
Average EMC group[1]	11.1	13.0	15.9	34.6	43.5	12.2	14.0	15.6	20.2	20.5
Median EMC group[1]	3.5	4.8	5.4	13.4	15.7	9.7	12.2	13.6	15.9	16.6
Chile	15.1	14.7	14.4	16.0	17.1	19.9	20.1	21.0	17.0	15.0
Colombia	9.9	8.0	10.2	13.4	15.0	10.1	9.3	12.4	13.9	12.3
Egypt	17.5	14.6	13.0	14.4	18.9	25.9	16.2	13.7	18.3	20.3
Mexico	19.4	31.8	44.8	64.1	71.3	5.8	6.6	7.2	9.4	9.3
Philippines	10.3	13.6	13.8	13.5	15.7	12.2	17.8	19.4	15.7	16.1
South Africa	2.2	7.4	7.5	14.7	20.7	1.5	5.5	6.3	6.8	8.6
	(Percent of short-term debt)					(Months of imports of goods and services)				
Average EMC group[1]	501.0	149.2	159.7	228.5	275.8	4.4	4.9	5.1	6.1	6.1
Median EMC group[1]	87.9	108.0	100.2	131.0	147.5	3.6	4.5	4.6	5.3	4.9
Chile	150.3	171.7	125.3	112.0	118.1	8.5	9.1	8.1	6.5	5.4
Colombia	109.3	92.6	100.2	102.2	130.2	7.2	7.2	7.7	8.1	7.3
Egypt	820.3	506.0	420.4	401.2	489.6	11.8	8.3	7.2	7.4	7.5
Mexico	38.0	49.8	91.5	148.2	161.7	3.4	3.6	4.2	5.2	5.1
Philippines	80.7	112.9	98.8	99.6	110.9	3.0	4.4	4.5	3.2	3.6
South Africa	15.0	55.7	69.6	154.1	184.2	0.8	2.9	2.9	3.0	3.6

Source: *World Economic Outlook* and author's calculations.

[1] Group of almost 50 emerging market countries EMCs plus Korea, characterized by access to international capital markets and a significant degree of financial development.

13. **Table III.1 suggests that the level of South Africa's reserves at the end of 2005 is not out of the ordinary.** In recent years, South Africa's reserves accumulation has outpaced the average and median of EMC, but this can be explained by the fact that reserves started from a very low base in 1996. Before we conduct an empirical analysis that could provide more insights into the adequacy of South Africa's reserves, the following points are worth highlighting.

[5] The countries included in the EMC group are listed in the Appendix.

- Inflation targeters—Chile, Colombia, Mexico, and the Philippines—tend to have reserves coverage ratios that are similar to those of EMCs in general.
- For the group of selected EMC, the average and median GIR-to-short-term external debt (STED) exceeds the Greenspan-Guidotti rule of 100 percent, reflecting the aversion to short-term debt that characterizes many countries, in particular those that have experienced financial crises.
- South Africa's reserves are below both the average and the median of the EMC group, except when GIR is scaled by STED. In fact, not only is South Africa's import cover one of the lowest, it is not too high compared with the rule of thumb of three months of imports. South Africa's relatively high GIR-to-STED ratio reflects not only the accumulation of reserves but also an improvement in the maturity structure of its external debt in recent years.

14. **Reserves are important for South Africa whose higher openness to international trade and finance since the mid-1990s has increased its exposure to external shocks, including the risk of contagion from crises in other countries.** As with the Asian and Russian crises, contagion can affect even countries with strong fundamentals, though perhaps not as severely.[6] High reserves help reduce the likelihood of international financial contagion or contain the output cost of a crisis.[7] Calvo and Mishkin (2003) suggest that even countries with a floating exchange rate must be concerned about the possibility of a run on their currencies. They indicate that countries with floating exchange rate that hold large reserves "float with a large life jacket." Nonetheless, while high reserves can help offset moderately weak fundamentals, no amount of reserves can counterbalance very weak fundamentals (Li and Rajan, 2005). Also, large reserves provide a cushion that permits to pursue the easing of restrictions on capital account transactions.

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[6] For instance, "both Chile and Argentina experienced a sudden stop after the 1998 Russian crisis, but the impact on the Chilean economy was relatively small because Chile's stronger fiscal, financial and monetary institutions have resulted in much less liability dollarization" (Calvo and Mishkin, 2003).

[7] Reserves lower the probability of a crisis and mitigate the output costs of a crisis. Caramazza, Ricci, and Salgado (2004) find that a high reserves-to-STED reduces the likelihood of international financial contagion. Hviding and Ricci (2005) highlight the costs and benefits of reserve holding.

D. Empirical Analysis

Model Specification

15. **We follow the common approach used in the empirical literature**. The approach (see Aizenman and Marion, 2004) assumes that actual reserves are proportional to optimal reserves up to an error term that is uncorrelated with variables explaining reserves holding. We use a panel data set of 49 EMC with annual data from 1980 to 2005, and estimate the following equation.

$$\text{Res}_{it} = X_{it}\beta + \varepsilon_{it} \qquad i = 1,...,N \quad t = 1,...,T \qquad (1)$$

With $\varepsilon_{it} = \alpha_i + \mu_{it}$.

In equation (1) i indexes countries, t indexes years. Res_{it} is a measure of reserves (GIR in percent of GDP). X_{it} is a vector of explanatory variables, which includes indicators of the size of the economy, trade openness and financial openness, and a measure of opportunity cost and exchange rate volatility. The α_i are country-specific fixed effects, β is a vector of unknown parameters to be estimated, and μ is the vector of residuals.

Estimation and Results

16. **The explanatory variables used are those that are standard in the literature, including a dummy to control for the Asian crisis**. We use real per capita GDP and population to capture differences in development and economic size. To control for vulnerability to external shocks, we use total external debt-to-GDP ratio, short-term external debt as a percent of total external debt, net private capital flows-to-GDP ratio, volatility of private capital flows, imports-to-GDP ratio, and volatility of real exports. We also include measures of the volatility of the exchange rate and a dummy for the post-Asian crisis period, which seems to have boosted countries' desire to accumulate reserves for self-insurance. Interactive terms of the post-Asian crisis dummy and private capital flows-to-GDP ratio, short-term debt ratio, and imports-to-GDP ratio are also included to evaluate how the crisis may have altered the way these variables affect reserves accumulation. We also include a measure of the opportunity cost of holding reserves.[8] The variables are described in the Appendix.

17. **The estimation is carried out using two different methods.** We begin with a panel OLS estimation with fixed-effects to control for country-specific characteristics not captured

[8] A measure of country risk was included and subsequently dropped because it was not significant.

by the explanatory variables.[9] We also estimate a dynamic panel model as an alternative specification and use the first-differenced generalized method of moments (GMM) proposed by Arellano and Bond (1991). The results are presented in Appendix Table III.A1.

18. **The results are broadly as expected with a few exceptions:**

- Most of the key variables enter the regressions with expected signs. Thus population, imports, and external debt have a positive and significant impact on the demand for reserves. Net private capital flows, volatility of private capital, and volatility of exports have positive signs but are not consistently significant.

- The signs and significance of the coefficients on broad money-to-GDP ratio, exchange rate volatility, and real per capita GDP are mixed. Aizenman and Lee (2005) also find mixed results on the coefficient of real per capita GDP, while Edison (2003) and Aizenman and Marion (2004) find that real per capita GDP had a positive and significant impact on the demand for reserves.[10]

- The opportunity cost is positively and significantly associated with reserves—a counterintuitive result found also in Flood and Marion (2002).[11]

- The negative and significant coefficient on the short-term external debt ratio seems counterintuitive. This result could indicate that countries that have difficulties placing long-term debt also have problems accumulating reserves. [12]

19. **In relation to the possible change in the determinants of reserves after the Asian crisis, a few results are worth highlighting:**

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[9] A panel estimation fits the purpose of the analysis by bringing the cross-country perspective. Also, it helps increase the degree of freedom. Country fixed effects control for country specific factors not captured by other explanatory variables. Tests confirm their validity.

[10] The difference may be due to the measure of reserves used by the various authors. In regressions where *Res* is GIR scaled by GDP or other relevant scale variables, such as in Aizenman and Lee (2005), results have been mixed. In regressions where *Res* is gross international reserves deflated by a price index, per capita GDP has been found to have a significant positive impact on reserves (Edison, 2003; Aizenman and Marion, 2004).

[11] Investigating the FJ buffer-stock model using new data, Flood and Marion (2002) find that the coefficient on the opportunity cost measure is not reliably negative. In some regressions in which the dependent variable is reserves scaled by imports or by broad money, the coefficient on the opportunity cost measure is positive and significant.

[12] In their analysis of the demand for reserves in Korea, Aizenman, Lee, and Rhee (2005) also find a negative and significant coefficient on short-term external debt for the pre-crisis period. A negative impact of debt on reserves accumulation is discussed in Lane and Burke (2001), who find that total external debt is negatively associated with reserves holding.

- The post-Asian crisis dummy (*postasia*) is positively associated with reserves holding, indicating that countries stepped up their reserves accumulation after the Asian crisis. The coefficient on *postasia* suggests that for the countries in our sample, the Asian crisis explains an average increase of 1 to 1½ percentage points of GDP in reserves holding. This seems to reflect the fear of a sudden stop.
- The interaction of *postasia* with some variables of interest suggests that the Asian crisis may have altered the relationship between reserves holding and some fundamentals. In particular, *short-term external debt ratio* by itself is negative and significant, but its interaction with *postasia* is positive and significant in regression (2a). This result is somewhat in line with Aizenman, Lee, and Rhee (2004). Furthermore, *imports-to-GDP* has a positive impact by itself but the interaction of *imports-to-GDP* with *postasia* has a negative and significant impact in most of the regressions, suggesting that imports have a lesser overall impact in the determination of reserves holding.

20. **The results used for the assessment of South Africa's reserves adequacy are based on the GMM regression in column (4b).** In general, GMM estimation controls for the potential bias induced by the endogeneity of all variables. In our analysis, GMM regressions, in particular regression (4b), appear to be predicting South Africa's reserves holdings quite closely. Also, regression (4b) has the lowest standard error. The Sargan and serial correlation tests clearly suggest that the estimates are consistent and asymptotically efficient.[13] Further details on the regressions are in the note at the end of Appendix Table III.A1

21. **South Africa's reserves holding has been broadly in line with levels predicted by our preferred regression.** Based on regression (4b), for 1996-2005, actual reserves remained within the boundaries of the prediction confidence interval at different probability levels most of the time (see Figure III.1); generally, though, the predicted tends to exceed the actual level of reserves.[14] During 1999-2001, actual and predicted are almost the same. For 2005, the actual is only slightly above predicted.

[13] Lagged levels of the variables are used as instruments.

[14] However for 2003, the actual is below the boundaries of the prediction confidence interval.

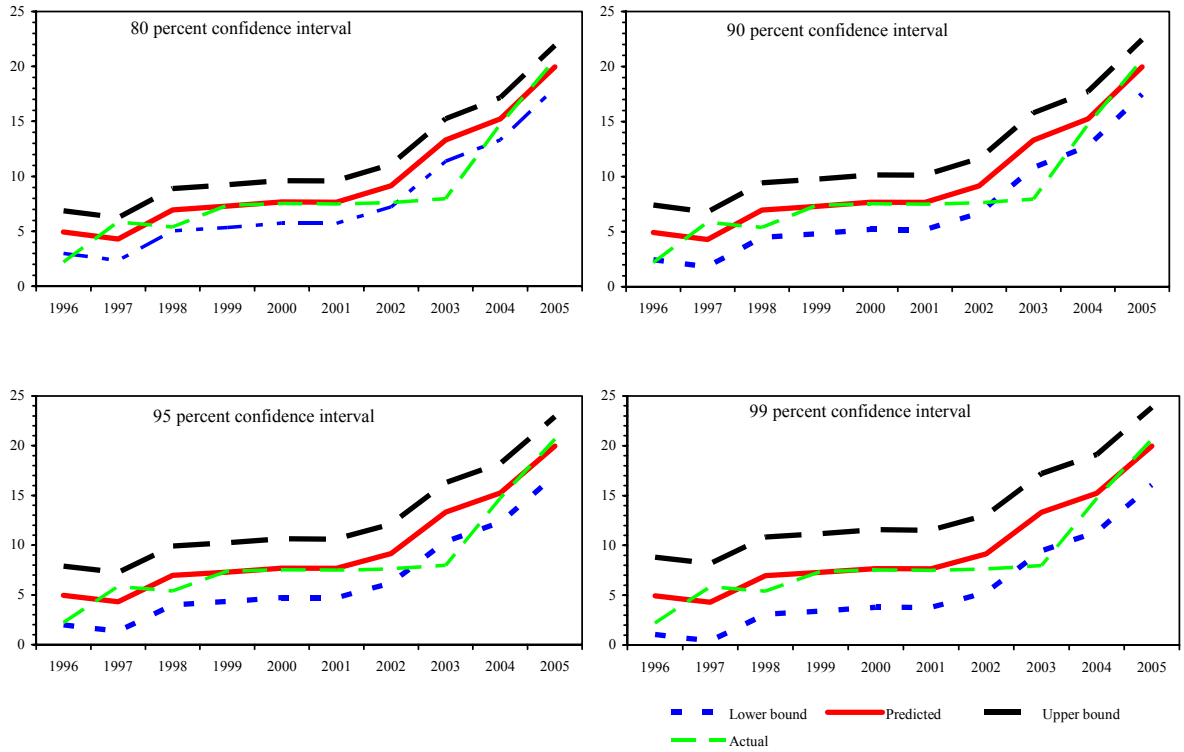
Table III.2. South Africa: Model-Predicted Reserves vs. Benchmarks

	GIR in bil. US dollars							GIR in Percent of ST Debt		GIR in Months of Imports	
		Predicted OLS[1]			Predicted GMM[1]				Deviation[2]		Deviation[2]
	Actual	(1)	(2a)	(2b)	(3)	(4a)	(4b)	Pred. in (4b)	from 100	Pred. in (4b)	from 3
1995	4.3	4.8	3.5	3.4	--	--	--	--	--	--	--
1996	2.2	5.2	3.9	3.7	4.9	4.9	4.9	33.6	-66.4	1.8	-1.2
1997	5.8	5.7	4.1	4.0	4.4	4.2	4.3	30.7	-69.3	1.5	-1.5
1998	5.4	5.3	3.9	3.8	6.3	7.2	7.0	48.8	-51.2	2.5	-0.5
1999	7.4	6.7	5.1	5.0	6.4	7.5	7.3	55.2	-44.8	2.9	-0.1
2000	7.5	6.6	5.0	5.0	6.7	7.9	7.7	56.9	-43.1	2.8	-0.2
2001	7.5	6.1	4.8	4.8	6.8	7.8	7.7	71.1	-28.9	3.0	0.0
2002	7.6	6.1	4.8	4.7	8.5	9.3	9.1	75.7	-24.3	3.4	0.4
2003	8.0	9.7	7.5	7.1	12.3	13.6	13.3	116.5	16.5	3.7	0.7
2004	14.7	12.7	9.6	9.1	14.9	15.4	15.2	159.5	59.5	3.1	0.1
2005	20.7	14.7	11.4	11.3	20.2	20.5	20.0	178.0	78.0	3.5	0.5

[1] The columns for the predicted values correspond to those of the regressions in Appendix Table A1, from which the predicted values are derived.

[2] Indicates by how much the predicted value from estimation in column (4b) deviates from the norm. A negative number indicates that the model-predicted figure is below the benchmark.

Figure III.1. South Africa: Prediction Confidence Interval for Reserves in Billions of US Dollars



Source: Author's calculations.

E. Conclusion

22. **The analysis in this paper suggests that, at present, South Africa's reserves are broadly in line with those of other EMC.** The study of various coverage ratios indicates that, after increasing for the last few years, South Africa's reserves are now comparable to those of its peers. While South Africa's reserves are somewhat above the norm in relation to

short term external debt, they are somewhat below it in relation to imports. This suggests that further accumulation would not be unreasonable, but it is not urgent.

23. **The results of the econometric analysis broadly confirm this conclusion.** We estimated several models based on a panel of data, and we used them to predict South Africa's reserves. For most of the time during recent years, South Africa's reserves are within the confidence interval constructed on the basis of our preferred model. In fact, while they were below the confidence interval in 2003, by 2005 actual reserves are essentially at the level predicted by the model.

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Appendix

A. Model Specification and Analysis

$$\mathrm{Re}\,s_{it} = X_{it}\beta + \varepsilon_{it} \qquad i = 1,...,N \quad t = 1,...,T \qquad (1)$$

With $\varepsilon_{it} = \alpha_i + \mu_{it}$.

In equation (1) i indexes countries, t indexes years. Res_{it} is a measure of reserves (GIR as a percent of GDP). X_{it} is a vector of explanatory variables

For the dynamic panel specification a lagged dependent variable is included in the vector of explanatory variable in equation (1). As OLS estimates are biased and inconsistent in the presence of a lagged dependent variable, first-differencing eliminates the α_i from equation (1) above. Arellano and Bond (1991) suggest that the only assumption required on the initial conditions Res_{i1} is that they are uncorrelated with the subsequent disturbances μ_t for t= 2, 3,…, T. They argue that the orthogonality between lagged values of the dependent variable and subsequent disturbances allows for the use of additional instruments to derive consistent and asymptotically efficient estimates. They propose two types of differenced GMM estimators, the one-step estimator and the two-step estimator.[15] As the consistency of the estimates depends on the validity of the instruments and the absence of second-order serial correlation, in the case of a two-step estimator, they also propose that the Sargan test for overidentifying restrictions and second-order serial correlation test be used to check for the validity of the instruments.

In regressions (3), (4a), and (4b), the p-values for the Sargan and second-order serial correlation denote failure to reject the null hypotheses that the instruments are uncorrelated with the residuals and that there is no second order serial correlation.

B. Data Source, Variable Description, and Countries in the Sample

All series, except public and publicly guaranteed debt, are from the IMF World Economic Outlook (WEO, April 2006).

Public and publicly guaranteed (PPG) debt is from the World Bank World Development Indicators (WDI).

Some variables shown in Appendix Table III.A1 do not need to be defined.

- *Reserves*: Total GIR including gold as a percent of GDP.

[15] Details on the procedures can be found in Arellano and Bond (1991).

- Real per capita GDP: is measured at constant 2000 US dollar prices.
- PPG debt is medium and long-term public and publicly guaranteed debt.
- *Short term external debt ratio*: is short term external debt at remaining maturity as a percent of total external debt.
- *Short term external debt-to-GDP ratio*: is short term external debt at remaining maturity as a percent of GDP.
- *Net private capital*: net capital flows as a percent of GDP.
- *Opportunity cost*: spread between the interest rate on 6-month US dollar deposits and the yield on 10-year US Treasury bonds (in percent).
- *Exchange rate volatility* is measured as the standard deviation of monthly changes in the nominal effective exchange rate during the preceding 12 months.
- *SOU* is a dummy variable that takes the value of 1 for South Africa and 0 otherwise.
- *Volatility of real exports* is measured as the standard deviation of the constant price value of exported in US dollars during the preceding five years.
- *Volatility of private capital* is measured as the standard deviation of net private capital flows in US dollars during the preceding five years.

Countries: Algeria, Argentina, Bosnia, Brazil, Bulgaria, Chile, China (mainland), Colombia, Costa Rica, Croatia, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Guatemala, Hungary, India, Indonesia, Israel, Jamaica, Jordan, Kazakhstan, Korea, Latvia, Lebanon, Lithuania, Malaysia, Mexico, Morocco, Pakistan, Panama, Peru, Philippines, Poland, Romania, Russia, Serbia and Montenegro, Slovak Rep., Slovenia, South Africa, Sri Lanka, Thailand, Tunisia, Turkey, Ukraine, Uruguay, and Venezuela.

Appendix Table III.A1. Determinants of Reserves

	OLS			Diff-GMM		
	(1)	(2a)	(2b)	(3)	(4a)	(4b)
Lagged dependent variable	----	----	----	0.391***	0.461***	0.445***
				0.000	0.000	0.000
Per capita GDP	-0.267***	-0.092	---	0.377***	-0.105	----
	0.001	0.387		0.007	0.550	
Population	2.412***	2.543***	2.109***	1.409***	1.584***	1.809***
	0.000	0.000	0.000	0.000	0.000	0.000
External debt to-GDP	----	0.002***	0.001**	----	0.007**	0.007**
		0.000	0.047		0.000	0.000
PPG external debt-to-GDP	0.002	----	----	0.010***	----	----
	0.142			0.000		
Short-term external debt (STED)-to-GDP	-0.006***	----	----	-0.009***	----	----
	0.002			0.003		
STED-to-external debt ratio		-0.390***	-0.300***		-0.392***	-0.300**
		0.004	0.001		0.001	0.014
Imports-to-GDP	0.012***	0.011***	0.014***	0.029***	0.023***	0.022***
	0.000	0.001	0.000	0.000	0.000	0.000
Broad money-to-GDP	0.006***	-0.001	-0.001**	0.007***	0.005***	0.004***
	0.001	0.228	0.051	0.000	0.007	0.058
Net private capital flows-to-GDP	0.0012	0.003	----	0.005*	0.006**	0.008***
	0.738	0.397		0.063	0.022	0.000
Volatility of private capital flows	0.022***	0.032***	0.028***	0.011	0.014**	0.019***
	0.001	0.000	0.000	0.222	0.032	0.008
Exchange rate volatility	-0.628*	-0.538*	-0.530*	0.814***	0.799	0.817***
	0.071	0.076	0.066	0.000	0.140	0.000
Volatility of real exports	0.011***	0.009***	0.008***	0.002	0.002	----
	0.001	0.004	0.005	0.561	0.140	
Postasia (dummy for after 1998)	0.183**	0.170*	0.291***	0.189***	0.344***	0.386***
	0.014	0.078	0.000	0.008	0.000	0.000
Opportunity cost	0.029***	0.024**	---	0.037***	0.035***	0.036***
	0.010	0.040		0.000	0.000	0.000
Postasia * net private capital ratio	0.011	0.007	---	0.011***	0.004	----
	0.140	0.350		0.002	0.268	
Postasia * STED ratio	0.009	0.254**	---	0.007***	0.162	----
	0.140	0.054		0.011	0.302	
Postasia * imports-to-GDP ratio	-0.003**	-0.0001	---	-0.009***	-0.011***	-0.011***
	0.044	0.947		0.000	0.000	0.000
Adjusted R-squared	0.934	0.901	0.913	---	----	----
Number of cross sections	41	42	43	45	46	46
Number of observations	824	896	926	809	924	925
Standard error	0.498	0.508	0.509	0.437	0.416	0.411
Sargan test	----	----	---	0.182	0.38	0.445
Serial correlation test	----	----	---	0.15	0.25	0.27

Notes: The dependent variable is the log of GIR in percent of GDP. Regressions (1) thru (2b) include country fixed-effects. All the explanatory variables expressed as ratios are in percent and are lagged in the regressions in columns (1) thru (2b). Real per capita GDP also is lagged.
Diff-GMM in regressions (3), (4a), and (4b) refers to the two-step differenced estimation developed by Arellano and Bond (1991). Except for the inclusion of a lagged dependent variable, regressions (3) , (4a), and (4b) are the equivalent in GMM of the OLS regressions (1), (2a) and (2b), respectively. The specification in regression (2b) is the same as the one in regression (2a), except that it excludes non-significant variables. The same applies to (4b) compared with (4a).
*, **, and *** denote significance at 10, 5, and 1 percent. Heteroskedacity-consistent *p*-values are below the coefficients.
Sargan test refers to the *p*-values of the χ^2 statistic of a test of the null hypothesis that the overidentifying restrictions are valid.
Serial correlation refers to the *p*-values of a test of the null of no second order serial correlation.

IV. Cyclically Adjusted Budget Balances: An Application to South Africa[1]

A. Introduction

1. **A proper assessment of economic policies should be based on indicators of discretionary actions that reflect policymakers' objectives and constraints.** In the fiscal realm, it is common to rely on definitions of *budgetary balances* that capture specific dimensions of fiscal policy. For example, the primary fiscal balance is used in combination with the debt to GDP ratio to assess fiscal sustainability. The current balance captures the contribution of the government sector to national savings; the public sector borrowing requirement makes it possible to assess the impact of government activities on financial markets. And changes in the conventional budget balance are interpreted as an indicator of how the fiscal policy stance affects aggregate demand.[2]

2. **A well-known shortcoming of nominal budget balances is that they automatically respond to developments unrelated to policy actions.** The budget is a commitment to allocate public resources to certain programs subject to a well-defined budget constraint. Hence fiscal policy actions are primarily reflected in expenditure variations and in the eventual revenue-raising measures required to satisfy the budget constraint. However, actual revenues, and to a lesser extent, expenditures, reflect events that are beyond the control of government in general and fiscal policy actions in particular. As a result, assessing fiscal policy on the basis of ex post budget balances can be misleading.

3. **The main source of endogenous variations in nominal budget balances is the business cycle.** Various methods can be used to separate the automatic budgetary impact of the cycle from the effect of discretionary policy changes. Budgetary surveillance conducted by the European Commission, the OECD, and the IMF now routinely relies on cyclically adjusted budget balances (CABs). A growing number of individual countries also publish CABs in official documents to complement the information conveyed by nominal balances. In Chile, the United Kingdom, Sweden, or the Euro area, CABs even play an explicit role in rules-based fiscal frameworks, although, with the notable exception of Chile, they are not primary budgetary targets.

4. **In South Africa, budget documents discuss fiscal policy in terms of nominal balances only.** A discussion of business cycle and exogenous factors that impact the budget nevertheless helps understand the broad variations in fiscal indicators. The conventional

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[1] Prepared by Xavier Debrun (FAD). This chapter benefited from insightful comments by IMF colleagues and staff of the South African National Treasury, and in particular Fabrizio Balassone, Mark Horton, Matthew Simmonds, Joan Stott, and Noekie Steyn.

[2] Jacobs (2002) provide an extensive survey of useful fiscal balances in the South African context.

balance, the primary balance, and the current balance of the national government, as well as the borrowing requirement of the nonfinancial public sector receive particular attention.[3]

5. **This chapter applies commonly used methods of cyclical adjustment to the primary and the conventional balance of the national government in South Africa.** Because the results broadly support Horton's analysis (2005) of fiscal policy during the last decade, the discussion here focuses more on the methodological challenges to estimating CABs for South Africa and on the budgetary impact of cyclical developments in recent years.

6. **The following main conclusions emerge:**

- Cyclically adjusted balances are generally close to their nominal counterparts, reflecting the relatively small size of the government sector in South Africa, the negligible effect of the business cycle on expenditure, and the moderate deviations of actual GDP from its trend. Still, changes in CABs give a more accurate picture of the underlying policy impulses, and can sometimes differ significantly from changes in nominal balances.

- CABs obtained with three alternative methods give broadly similar results. The first is a rule of thumb that assumes that tax revenues have a unit elasticity to the output gap. The second allows for different elasticities in broad tax categories, using econometric estimates for South Africa. The third is a disaggregated method that accounts for possible composition effects in GDP cycles. Despite sizeable dissimilarities in the cyclical behavior of GDP components in South Africa, the impact on CAB estimates generally remains limited.

- While it is assumed that expenditure does not systematically respond to the cycle, the cyclical sensitivity of tax revenues in South Africa is generally comparable to that of other economies. Corporate income tax (CIT) revenues nevertheless exhibit a relatively high elasticity to economic activity, perhaps because econometric estimates may also capture the buoyancy associated with improved compliance in recent years.

- Projections of CABs for 2006/07 to 2008/09 confirm an expansionary medium-term path of fiscal policy. These estimates may, however, suffer from a downward bias in the estimation of the business cycle, owing to the use of Hodrick-Prescott filtering. The projections are nevertheless robust to the different output gaps obtained under alternative growth scenarios underlying GDP projections.

[3] Outturns for the consolidated general government are also presented.

- Analysis of cyclical balances provides useful information on what determines revenue performance in South Africa. The recent increase in the tax revenue-to-GDP ratio is only partly explained by cyclical factors, stressing the need for a better grasp of the impact on tax revenues of improved compliance. It would also be useful to better understand the contribution of the informal sector to revenue performance, notably through indirect taxes paid on inputs.

B. Concepts and Methods

7. **A cyclically adjusted balance is an estimate of the budget balance that would prevail if GDP was on trend, or at potential, in a given year.** Hence, assuming no change in revenue and expenditure policies, any deviation of actual GDP from trend (i.e., any output gap) results in a difference between the CAB and the nominal balance. Because the CAB is expected to be insensitive to the automatic impact of transitory fluctuations in economic activity, it is generally thought to better reflect the discretionary policy stance than the nominal balance.

8. **To calculate CABs, the nominal budget balance is decomposed into two parts:** the cyclical balance (which captures the *automatic* effect of the cycle on the budget, and denoted by B_c below), and the CAB (denoted by B^*).

$$B = B^* + B_c \qquad (1)$$

If output is on trend, then $B_c = 0$ by definition, because there is no difference between the nominal balance and the CAB ($B = B^*$). When output is below trend (such as at the end of a recession), revenue is lower than if output were on trend, and $B_c < 0$. In that case, the CAB shows a lower deficit, or higher surplus, than the nominal balance, that is, discretionary fiscal policy is less expansionary than it appears from the nominal balance ($B^* > B$). When output is above trend, then $B_c > 0$, and the CAB shows a larger deficit, or smaller surplus, than the nominal balance ($B^* < B$), and discretionary fiscal policy is more expansionary than it appears. Table IV.1 summarizes the relationship between the output gap, the cyclical balance, and the CAB.

Table IV.1. Budget Balances, the Output Gap, and the Interpretation of Cyclically Adjusted Balances

Output	Output gap	Cyclical balance	CAB	Interpretation
On trend	Zero	Zero	Same as the nominal balance	The nominal balance appropriately reflects the discretionary fiscal stance.
Below trend	Negative	Negative	Smaller deficit (larger surplus) than the nominal balance	The discretionary fiscal stance is less expansionary (more restrictive) than it appears from the nominal balance.
Above trend	Positive	Positive	Larger deficit (smaller surplus) than the nominal balance	The discretionary fiscal stance is more expansionary (less restrictive) than it appears from the nominal balance.

Source: IMF staff.

9. B^* **does not exclude *all* cyclical influence.** In particular, since the aim of cyclical adjustment is to better capture policy actions,[4] the discretioary response of fiscal policy to the cycle needs to be reflected in B^*. Moreover, conventinonal adjustment methods generally ignore variables sensitive to the business cycle that may directly influence the budget independently of the output gap, including commodity prices—particularly relevant where a significant part of the extraction industry is state-owned—interest rates, exchange rates, and asset prices.[5] One reason for omitting them is that the cyclical component is difficult to estimate. Also, applying multiple corrections to nominal balances inevitably complicates interpretation of CABs.

10. **Cyclical adjustment of nominal budget balances involves mechanical correction of budget items deemed sensitive to the output gap.** In general, expenditures are considered not to automatically react to GDP fluctuations; the only exception is unemployment benefits, which depend on the difference between actual and "structural" unemployment rates. However, since the calculations in this paper concern the national government and exclude expenditures of the Unemployment Insurance Fund,[6] no correction

[4] Of course, policy actions as captured by the CAB may differ from policy intent, often for reasons that escape policymakers, such as natural disasters that require emergency relief, the cost of social unrest, etc. Other transitory components also affect CABs. Removing these items from CABs gives "structural" budget balances.

[5] In Chile, however, CAB estimates account for the direct budgetary impact of copper price cycles.

[6] Annual expenditures of the Unemployment Insurance Fund amount to about 0.2 percent of GDP (Table IV.2), while other social transfers to households (about 4.7 percent of GDP in 2005/06) do not primarily serve to insure against cyclical fluctuations (Horton, 2005). Hence, a correction for cyclical unemployment would not significantly affect CAB estimates for the general government in South Africa. This chapter's focus on national

(continued…)

will be applied to expenditures. Likewise, nontax revenues—in South Africa mainly interest receipts, dividends (potentially cyclical but quite volatile), administrative fees, and the proceeds from financial transactions—will not be adjusted. A specific correction for commodity price cycles also does not seem necessary in view of issues mentioned earlier, and of the modest contribution of the mining sector to corporate tax revenues (see Table IV.2).

Table IV.2. Structure of Tax Revenues (1998-2006)

	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
	(Percent of GDP)							
Total revenues	24.3	23.7	22.6	23.6	23.2	23.4	24.5	26.3
Tax revenues	23.7	23.2	22.3	23.2	22.9	22.8	24.1	25.8
Direct taxes	14.3	13.9	13.2	14.0	13.7	13.4	13.7	14.8
Personal Income (PIT)	10.3	10.3	9.1	8.6	7.9	7.7	7.8	8.1
Corporate income (CIT)	3.0	2.5	3.1	4.0	4.7	4.8	5.0	5.6
Of which: mining sector	0.3	n.a	n.a	n.a	n.a	n.a	0.3	0.6
Dividends (STC)	0.3	0.4	0.4	0.7	0.5	0.5	0.5	0.8
Other	0.8	0.7	0.6	0.7	0.7	0.5	0.4	0.3
Indirect taxes	8.7	8.6	8.3	8.3	8.1	8.6	9.3	9.7
VAT	5.8	5.8	5.7	5.8	5.9	6.3	6.9	7.3
Excise duties	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0
Fuel levies and other	1.8	1.7	1.6	1.5	1.3	1.3	1.4	1.4
International trade	0.8	0.8	0.9	0.8	0.8	0.7	0.9	1.2
less SACU payments	0.7	0.9	0.9	0.8	0.7	0.8	0.9	0.9
Other taxes	0.6	0.7	0.7	0.9	0.9	0.9	1.0	1.1
Property	0.4	0.5	0.4	0.4	0.4	0.5	0.6	0.7
Payroll	0.0	0.0	0.1	0.3	0.3	0.3	0.3	0.3
Other (stamp duties, etc.)	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1
Nontax revenues	0.6	0.5	0.4	0.4	0.4	0.5	0.4	0.5
Memorandum items								
Transfers to households	3.9	3.2	3.1	3.1	3.6	4.2	4.5	4.7
Of which: Unemployment Insurance Fund	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2

Sources: National Treasury, South African Revenue Service, and IMF staff calculations.

11. **Formally, B^* is defined as follows:**

$$B^* = \sum_{i=1}^{\tau} T_i \left(Y^* / Y \right)^{\eta_i} + NT - G \qquad (2)$$

where T_i designates a tax revenue item i (a common decomposition is between corporate income tax, personal income tax, and trade and indirect taxes; see Table IV.2), G, total expenditure, and NT, non tax revenues. Trend GDP is denoted by Y^* and actual GDP by Y,

government and the corresponding assumption of zero elasticity of public expenditure to the output gap thus seem reasonable. As a comparison, and despite broader social safety nets in the OECD, Girouard and André (2005) find expenditure elasticities of the general government between -0.02 (Luxembourg) and -0.23 (the Netherlands), with an average -0.1. Bouthevillain and others (2001) obtain similar numbers.

and are both expressed in real terms. The parameters η_i represent the elasticity of the tax category i to the output gap. To economize on the notation, equation (2) does not account for possible lags in tax collection—an issue that may be particularly relevant for corporate income tax (see below).[7]

12. **Equation (2) can be rewritten in terms of ratios to potential GDP.** In the notation that follows, a star designates a cyclically adjusted variable, and lower-case letters denote ratios to GDP for unadjusted variables and ratios to potential GDP for adjusted variables.

$$\begin{aligned} b^* &= \sum_{i=1}^{\tau} t_i \left({Y^*}/{Y} \right)^{\eta_i} \left({Y}/{Y^*} \right) + nt \left({Y}/{Y^*} \right) - g \left({Y}/{Y^*} \right) \\ b^* &= \sum_{i=1}^{\tau} t_i \left({Y^*}/{Y} \right)^{\eta_i - 1} + nt^* - g^* \end{aligned} \tag{3}$$

13. **From equation (3), two common adjustment methods can be described. The first uses a simple rule of thumb according to which tax revenues automatically respond to GDP with an elasticity of 1,** whereas expenditures elasticity is zero (IMF, 2005). In that case, only an estimate of potential GDP is needed to calculate the CAB. It is clear that assuming $\eta_i = 1$ for all $i \in [1, \tau]$ in equation (3) implies:

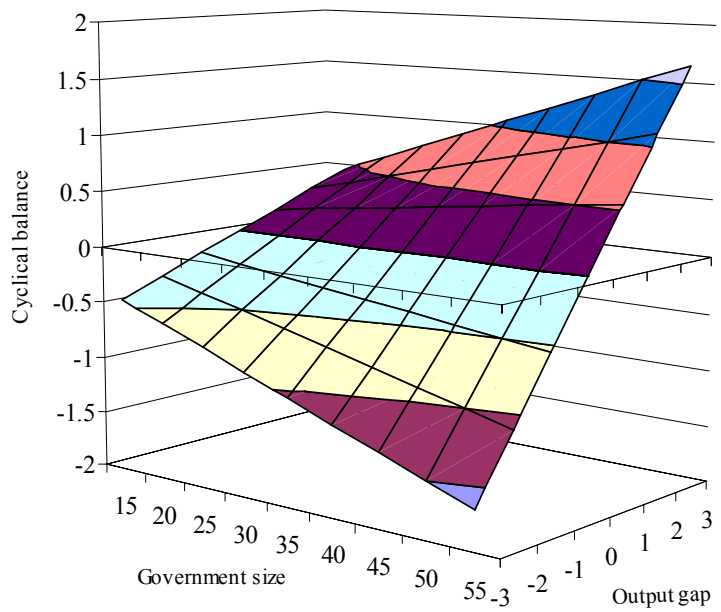
$$\begin{aligned} & b - b^*_{RT} = (nt - g)\left(1 - {Y}/{Y^*}\right) \\ & \Updownarrow \\ & b^*_{RT} = b - (g - nt)\left(\frac{Y - Y^*}{Y^*}\right) \end{aligned} \tag{4}$$

where a subscript RT refers to the rule-of-thumb method.

14. **Incidentally, equation (4) shows that the magnitude of the correction for the cycle is directly proportional to the size of government** (as measured by the expenditure ratio net of nontax revenues). Figure IV.1 below gives a flavor of the cyclical balance (i.e., the difference between the nominal balance and the CAB) associated with plausible ranges of government size (15 to 55 percent of GDP) and output gaps (-3 to 3 percent of potential GDP).

[7] See for instance Hagemann (1999), or Girouard and André (2005).

Figure IV.1. Theoretical Range of the Cyclical Balance Under the Rule-of-Thumb Method



Source: IMF staff calculations.

15. **A second correction method inspired by equation (3) is to allow for tax elasticities to differ according to the type of tax.** Hence, besides estimate of potential GDP, elasticities of various tax items to the output gap are also needed. These elasticities depend on the sensitivity of revenues to the tax base (denoted below by $\eta_i^{TB_i}$), and on the sensitivity of the tax base to the output gap (denoted by $\eta_{TB_i}^{Y}$). Specifically,

$$\eta_i = \eta_i^{TB_i} \eta_{TB_i}^{Y} \qquad (5)$$

where TB_i designates the tax base on which tax i is levied.

16. **The elasticity $\eta_i^{TB_i}$ reflects the progressivity of the tax system.** For example, because the personal income tax (PIT) is usually progressive, meaning that the average tax rate increases with taxable income, $\eta_i^{TB_i}$ should be greater than 1. Normally, there is a single rate for corporate income tax (CIT), implying neither progressivity nor regressivity. The VAT may be mildly progressive because basic goods may be exempt or zero-rated and luxury items subject to higher rates. In contrast, specific excise duties are regressive because they depend on real consumption. Overall, indirect tax revenues are thus likely to exhibit an elasticity to the tax base close to 1.

17. **Elasticities $\eta_i^{TB_i}$ are often calculated using statutory tax schedules and data on income distribution (see Giorno and others, 1995, and Bouthevillain and others, 2001);**

the elasticity of the tax base to the output gap ($\eta_{TB_i}^{Y}$) is determined econometrically. Some authors also estimate $\eta_i^{TB_i}$ with econometric techniques (e.g., Momigliano and Staderini, 1999) due to the demanding data requirements of the statutory approach.

18. **One assumption underlying the cyclical adjustment methods described in equations (3) and (5) is that GDP growth is balanced** in the sense that all its components follow the same cyclical pattern. In practice, however, a given cycle may not resemble previous ones because the primary sources of growth (consumption, net exports, investment) differ. Also, there may be systematic differences in the cyclical behavior of GDP components, suggesting that tax items may be subject to different cyclical influences. For instance, the labor market tends to respond with a lag to developments in the real economy. As a result, movements in taxable labor income are unlikely to be perfectly synchronized with GDP.

19. **To account for these composition effects, it has been proposed to adjust each tax category in relation to the cyclical pattern of GDP components that proxy the relevant tax base** (see Bouthevillain and others, 2001, Langenus, 1999, and Momigliano and Staderini, 1999).[8] Equation (6) describes the corresponding adjustment formula:

$$b_D^* = \frac{1}{Y^*}\left[\sum_{i=1}^{\tau} T_i \left(Y_i^* \big/ Y_i \right)^{\eta_i^{Y_i}} + NT - G\right] \qquad (6)$$

where Y_i designates a GDP component that proxies the tax base on which tax i is levied, Y_i^* is the trend value of the proxy base, $\eta_i^{Y_i}$ expresses the elasticity of tax i revenues to its proxy base, and the subscript D stands for "disaggregated method." Some official institutions, such as the European Central Bank, prefer that method to output-gap-based approaches (see Bouthevillain and others, 2001).

20. **The discussion of cyclical adjustment methods points to limitations that call for caution when interpreting CABs:**

- **Reliable cyclical adjustment depends on properly identifying potential GDP.** Yet there is no generally accepted way to do so, and existing statistical tools (see below) yield uncertain and potentially biased results, especially for recent years and forecasts. That problem is particularly relevant in countries like South Africa where structural changes affect potential growth. Hence, CAB forecasts and recent outturns

[8] The method still leaves out the effect of changes in *relative* price deflators accompanying GDP cycle (see Langenus, 1999, for a more detailed discussion).

are likely to be significantly revised as new information on the cyclical position of the economy becomes available.

- **Departing from the output gap as the sole basis for adjustment may cause problems.** *First, the risk of error is increased.* For instance, a specific correction for commodity price cycles or for exchange rate effects may duplicate the output-gap-related adjustment to a significant extent. Also, data on GDP components or proxy tax bases (required to implement a disaggregated approach) may be less reliable than aggregated GDP series, compounding the statistical bias associated with estimating cycles. *Second, the CABs obtained with such methods are harder to interpret.* For instance, assessing the pro- or countercyclical nature of discretionary policy (the relationship between policy and the business cycle) is potentially problematic if the CAB is not based on a consistent definition of the cycle.

- **Different methods can yield different outcomes,** and the choice of options is essentially a matter of judgment. As the purpose of CABs is to provide improved information on underlying fiscal policies, a simple and transparent adjustment technique should be preferred.

C. Cyclical Developments and Tax Elasticities

21. **Two preliminary steps are needed for calculating CABs.** The first is to estimate the trend and cyclical components of GDP and of the proxy tax bases. The second is to determine tax elasticities.

Trends Versus Cycles

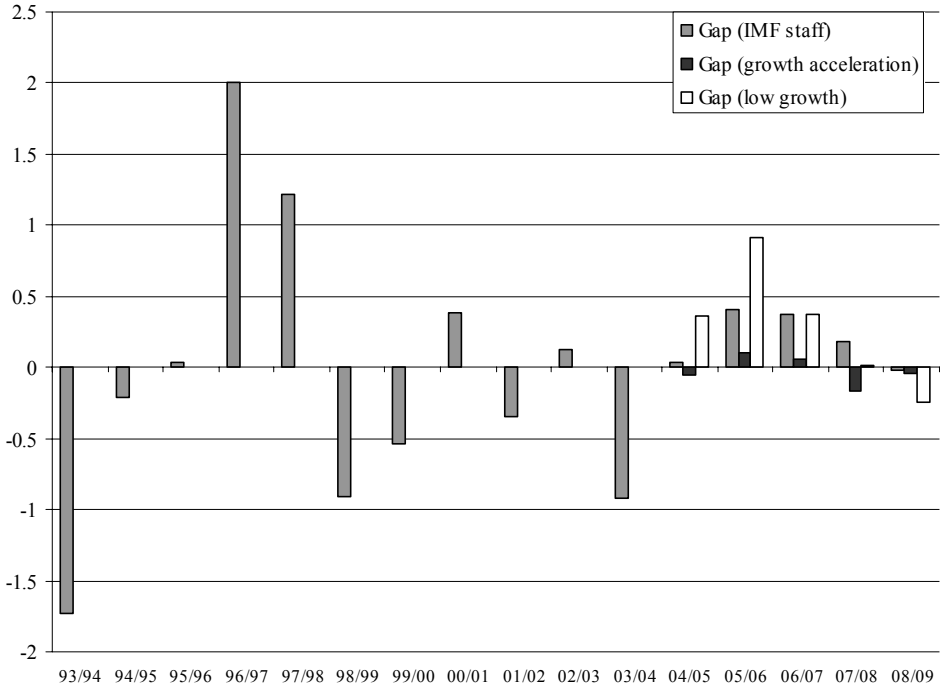
22. **Various techniques can be used to estimate potential output.** They include production functions, statistical filtering, and vector autoregression models (see Arora, 2005, for a comparison of these techniques with South African data). For the sake of simplicity, transparency, and comparability with the literature, this chapter relies on the Hodrick-Prescott (HP) filter, a common univariate filtering procedure to decompose a time series into a trend and a cyclical part.

23. **The simplicity and transparency of the HP filter come at a cost.** First, as discussed in the Appendix, implementing the HP filter implicitly rests on the analyst's view of the length of a "typical" cycle. Hence, the extent to which an acceleration, or deceleration, in actual GDP growth will be attributed to structural or cyclical factors is somewhat arbitrary. Second, the HP filter works in such a way that the calculated trend series is too close to the actual series at both ends of the sample. The cyclical component of GDP is therefore systematically underestimated as one gets closer to the end points. To partly alleviate the *end-point bias*, it is common to expand the sample period with GDP projections.

However, estimates of the cyclical position of the economy depend on the scenario underlying those projections (see below).

24. **To avoid mechanical adjustments of calendar-year data, fiscal year (FY) potential GDP has been calculated on the basis of quarterly seasonally adjusted data for real GDP** published by the South African Reserve Bank (SARB) between 1985 and 2005. IMF staff forecasts through 2009 have also been introduced in the sample. The resulting output gap (defined as the deviation of actual GDP from the HP trend in percent of the latter) is displayed in Figure IV.2. It is broadly in line with previous IMF staff estimates, including those based on alternative methodologies (see Arora, 2005, and Horton, 2005).

Figure IV.2. Fiscal-Year Output Gaps, 1993/94-2008/09
(Percent of trend GDP)



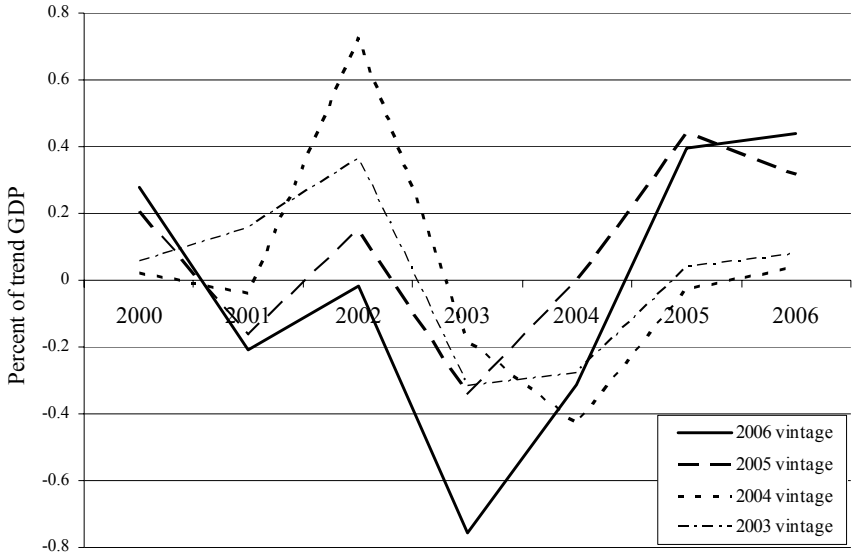
Sources: SARB, and IMF staff calculations.

25. **The questionable reliability of output gap measures at the end of the sample is reflected in low numbers and in sensitivity to the underlying economic scenario.** The end-point bias is likely to be significant in the last two fiscal years because the sample extends only three quarters beyond the end of FY 2008/09. Moreover, medium-term forecasts assume that GDP growth gradually reverts to potential, which tends to mechanically close the gap. The medium term scenario underlying projections also has a significant impact over FY 2004/05 to 2006/07. Under the growth acceleration scenario, that envisages a gradual acceleration to 6 percent by 2009, the output gap essentially remains closed over that period. In contrast, the somewhat more conservative IMF staff forecasts give a slightly positive output gap (0.4 percent). Finally, a slow-growth scenario, defined as

3 percent annual growth in real terms over the forecasting horizon, yields a positive gap of almost 1 percent of trend GDP in FY 2005/06.

26. **Nontrivial revisions of current and past gaps are likely as actual GDP series and the corresponding projections are revised.** Figure IV.3 compares output gaps calculated with four different spring vintages of (calendar-year) GDP data for 1970-2009. Between the 2004 vintage (before the two most recent revisions of GDP statistics) and the 2006 vintage, the gap for 2002 is revised downward by 0.75 percentage point; and upward revisions for 2005 and 2006 amount to 0.4 percentage point. Significant corrections go as far back as 2000 (0.25 percentage point).

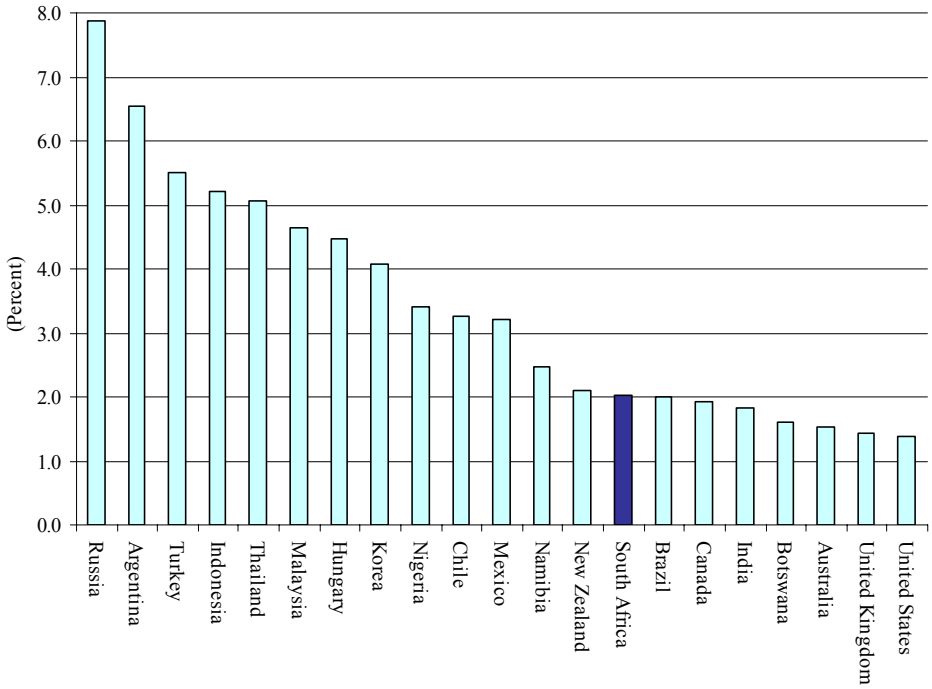
Figure IV.3. Output Gap Estimates Under Different Data Vintages, 2000-06
(Percent of trend GDP)



Source: IMF staff calculations.

27. **Still, output gaps in South Africa have on average been quite moderate over the last decade, close to or below 1 percent of trend GDP** (except for FY 1993/94 and 1996/97). This is in line with the relatively low volatility of South African real GDP growth for the last 15 years (Figure IV.4).

Figure IV.4. Real GDP Growth Volatility in Selected Emerging and Industrial Countries, 1990-2005
(Standard deviations)



Sources: World Economic Outlook database and IMF staff calculations.

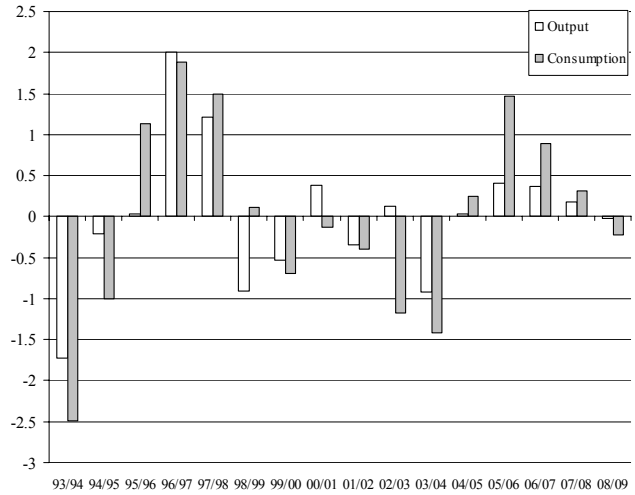
28. **To implement the disaggregated method, a similar HP filter is applied to GDP components that proxy tax bases,** using annual data since 1970. The sample includes IMF staff projections until 2009 on the assumption of balanced growth. This chapter relates three main tax categories to specific GDP components: the proxy base for indirect taxes (VAT and excise duties) is private consumption, the personal income tax is linked to the compensation of employees, and the corporate income tax (including the dividend tax or Secondary Tax on Companies) is linked to the gross operating surplus of firms.[9]

[9] Gaps are calculated with series in real terms. For the last two series, nominal figures have been deflated by GDP prices.

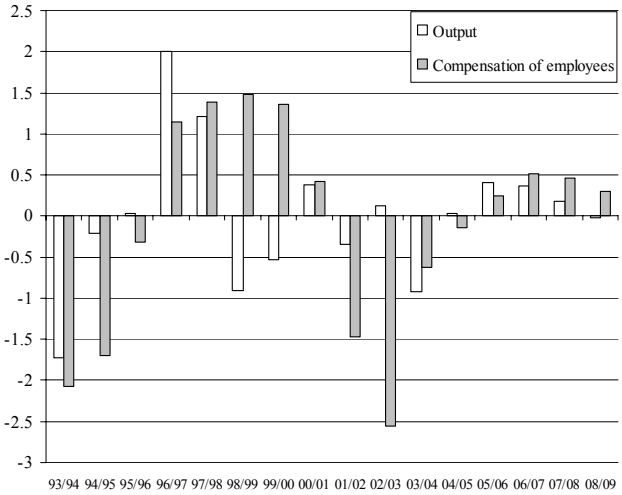
Figure IV.5. Cyclical Components of Proxy Tax Bases (1993/94-2008/09)

(Percent of trend values)

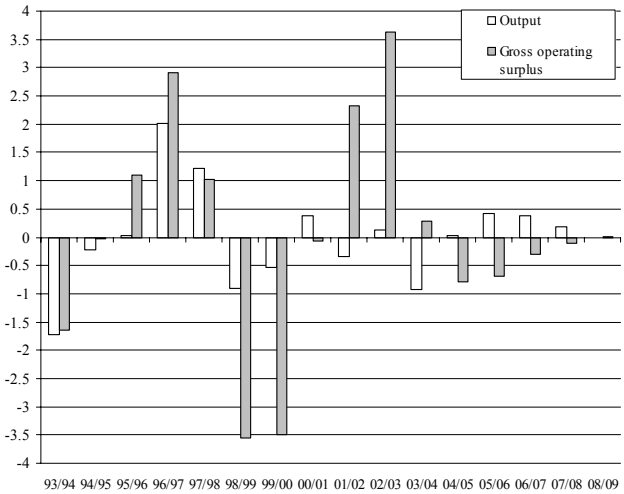
Private consumption



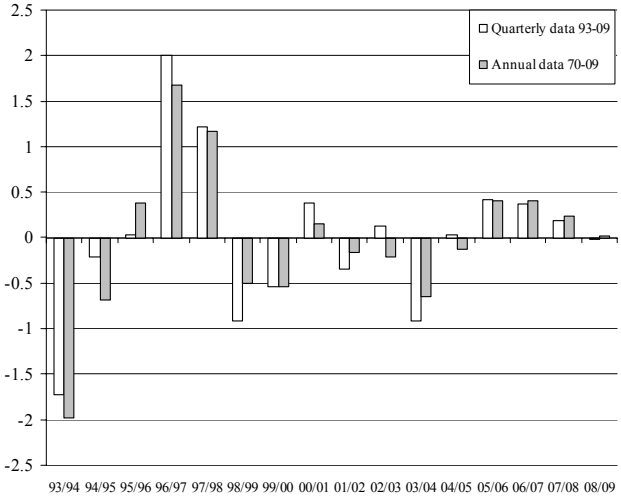
Compensation of employees



Gross operating surplus



Output gaps: annual vs. quarterly data



Sources: SARB, and IMF staff calculations.

29. **There seem to be important differences between the GDP cycle and that of its components (Figure IV.5).**[10] In particular, private consumption seems well above trend in 2005/06 and 2006/07, underscoring the strong contribution of consumer spending to growth in the present cycle. As expected, the cycle for the compensation of employees (CE) lags considerably with respect to the output gap, and also looks more persistent, which is consistent with sluggish labor market adjustment. A comparison with earlier cycles suggests that the positive gaps observed in 2006/07 and 2007/08 are likely to be underestimated, because of the end-of-period bias of the HP filter and the assumption of balanced growth in the projections appended to the sample. Until 2000, gross operating surplus (GOS) gaps are well synchronized with output gaps and, as is typical, often fluctuate more. However, the relationship seems to break down in 2000, suggesting that the large exchange rate gyrations experienced after that may have significantly affected export-oriented sectors. Specifically, the protracted weakness of the rand between 2000 and 2002 may have contributed to income windfalls accounting for the large positive GOS gaps in 2001/02 and 2002/03—despite near zero output gap—whereas the strengthening of the rand in 2003 through 2005 could explain continued negative gaps during a strong recovery.

30. **For completeness and consistency, the bottom-right panel of Figure IV.5 compares the output gaps using annual data consistent with the GDP components and the quarterly data used in Figure IV.2.** The chart confirms a great similarity between the two estimates.

Tax Elasticities

31. **Assumptions for tax elasticities vary depending on the cyclical adjustment method** (see Table IV.5). By definition, the rule-of-thumb approach assumes unit elasticity across all tax categories. The tax-specific elasticities needed in the other adjustment methods are based on econometric estimates.

32. **Econometric estimation of tax elasticities has limitations.** In particular, the deep structural changes affecting the South African economy—such as changes in the sources of growth, shifts in income distribution, and continued efforts to expand the tax base while reducing tax rates—may lead to significant breaks in the statistical relationships. To minimize the problem, evidence of structural breaks (found by applying recursive Chow tests) motivated adjustments in the sample period.[11] Estimates are also subject to a potential

[10] The HP filter is applied to calendar-year data. FY gaps result from a mechanical correction of the original series and its HP trend.

[11] While no sample adjustment seemed necessary for the equations linking revenue elasticities to the tax base (Table IV.3), statistically significant breaks were identified in the early 1980s for the relationships between the output gap and two proxy tax bases (i.e. the compensation of employees and the gross operating surplus).

simultaneity bias (for instance, because discretionary tax policy measures simultaneously affect economic activity and tax revenues); to a measurement error bias as some explanatory variables, such as the output gap are not observed; and to a specification bias because elasticities may themselves be cyclical (Bouthevillain and Quinet, 1999). Finally, the econometric models may capture a systematic discretionary response of tax policy to cyclical developments, with elasticities being overestimated if tax policy tends to be countercyclical, and underestimated in the opposite case.

33. **In line with Bouthevillain and others (2001), short-run tax elasticities relative to their respective proxy base ($\eta_i^{Y_i}$) are obtained by regressing nominal tax revenues on real proxy tax bases, using a log-difference specification.**[12]

$$\Delta \log(T_{i,t}) = \beta_0 + \beta_1 time + \beta_2 \Delta \log(T_{i,t-1}) + \beta_3 \Delta \log(Y_{i,t}) + \varepsilon_t \qquad (7)$$

where ε_t is an error term. The constant term captures possible trends in the ratio of tax revenues to the proxy base; the time variable accounts for possible changes in that trend; and the lagged dependent variable allows for a delayed response of tax revenues to the cycle.

34. **Standard specification tests rejected the presence of a time trend in the CIT equation.** The same tests also rejected the introduction of a lagged dependent variable, except for CIT, which is consistent with typical collection lags. The results are generally in line with expectations and with comparable estimates for other countries (Table IV.3).[13] The PIT elasticity to the compensation of employees is greater than 1, as expected under progressive taxation. Indirect tax revenues have the expected elasticity to private consumption close to 1, although the estimate is imprecise. The elasticity of CIT (including the Secondary Tax on Companies) to the gross operating surplus is about 2.7, which, although not implausible, is substantially higher than recent estimates obtained with a similar approach for EU countries.

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[12] An alternative to (7) is to perform a cointegration analysis to explicitly disentangle short-run and long-run elasticities (see Bouthevillain and others, 2001). Given the small size of the sample, a parsimonious specification seemed more appropriate here.

[13] Looking at European Union member states, Bouthevillain and others (2001) find CIT elasticities to the gross operating surplus of between 0.7 (Belgium) and 1.5 (France); PIT elasticities to worker's compensation between 1.2 (France) and 2.6 (the Netherlands); and elasticities of indirect taxes to private consumption between 0.7 (Luxembourg) and 1.2 (Sweden).

Table IV.3. South Africa: Tax Elasticities to Proxy Tax Bases ($\eta_i^{Y_i}$)

	Sample [1]	Constant	Trend	Compensation of Employees	Gross Operating Surplus	Private Consumption	R^2	LM-test Autocor-relation	White's Heteroske-dasticity
PIT revenues	1984-2005	0.35 *** (0.04)	-0.01 *** (0.00)	**1.49** *** (0.41)	-	-	0.71	0.09	0.27
CIT revenues [2]	1985-2005	0.03 (0.03)	-	-	**2.74** *** (0.65)	-	0.57	0.70	0.29
Indirect tax revenues	1980-2005	0.27 *** (0.05)	-0.01 *** (0.00)	-	-	**0.88** * (0.53)	0.37	1.28	1.97

Sources: National Treasury, SARB, and IMF staff calculations.
Note: Standard errors in brackets. Stars indicate the level of significance (*, less than 10 percent; **, less than 5 percent; and *** less than 1 percent).
[1] Samples reflect data availability.
[2] The lagged dependent variable (nonsignificant at the 10 percent confidence level) is not displayed.

35. **To recover South-Africa-specific tax elasticities with respect to the output gap, the sensitivity of the proxy tax bases to the output gap ($\eta_{Y_i}^{Y}$) needs to be estimated.** Girouard and André (2005) propose to regress the cyclical component of the base on the output gap as follows:

$$\Delta \log\left(Y_{i,t}/Y_{i,t}^{*}\right) = \gamma_0 + \gamma_1 \Delta \log\left(Y_{i,t-1}/Y_{i,t-1}^{*}\right) + \gamma_2 \Delta \log\left(Y_t/Y_t^{*}\right) + \upsilon_t \qquad (8)$$

where υ_t is an error term. As already indicated, sample periods were adjusted to avoid structural breaks identified in the early 1980s (Table IV.4). To account for the possible effect of exchange rate fluctuations on exporters' income, the GOS equation also includes the log-difference of the nominal exchange rate of the rand to the US dollar. The results indicate a positive but nonsignificant exchange rate effect for 2000-05.[14]

[14] The model uses two exchange rate variables, one interacted with a dummy for years 2000-05, and the other interacted with a dummy for previous years.

Table IV.4. South Africa: Elasticities of Proxy Tax Bases to the Output Gap ($\eta_{Y_i}^{Y}$)

	Sample [1]	Constant	Output Gap	R^2	LM-test Autocor-relation	White's Heteroske-dasticity
Compensation of employees [2]	1983-2005	0.00 (0.00)	**0.96** *** (0.30)	0.42	0.47	1.39
Gross operating surplus [3]	1983-2005	0.00 (0.00)	**0.92** ** (0.35)	0.34	0.04	1.96
Private consumption [4]	1970-2005	0.01 (0.00)	**1.13** *** (0.14)	0.69	0.83	1.35

Sources: National Treasury, SARB, and IMF staff calculations.
Note: Standard errors in brackets. Stars indicate the level of significance (*, less than 10 percent; **, less than 5 percent; and *** less than 1 percent).

[1] Full samples cover the period 1972-2005. Ajustments ensure the absence of structural breaks over the period.
[2] The lagged dependent variable (nonsignificant at the 10 percent confidence level) is not displayed.
[3] The exchange rate variables (nonsignificant at the 10 percent confidence level) are not displayed.
[4] The lagged dependent variable is not displayed.

36. **The elasticities of tax revenues to the output gap, which can be calculated as $\eta_i = \eta_i^{Y_i} \eta_{Y_i}^{Y}$, seem plausible in terms of the literature (Table IV.5).** CIT elasticity is above the range of OECD countries[15] (between 1.08 for Greece and 2.08 for Iceland), whereas the PIT sensitivity to the output gap is slightly higher than the OECD average (1.26) and comparable to estimated values for Ireland and Korea. The elasticity of indirect taxes is very close to the expected value of 1.

Table IV.5. Summary of Assumptions for Tax Elasticities

	Output Gap	Gross Operating Surplus Gap	Compensation of Employees Gap	Private Consumption Gap
Rule of thumb				
Corporate income taxes (CIT)	1.00	-	-	-
Personnal income taxes (PIT)	1.00	-	-	-
Indirect taxes	1.00	-	-	-
Other taxes	1.00	-	-	-
Elasticities to output gap				
Corporate income taxes (CIT)	2.52	-	-	-
Personnal income taxes (PIT)	1.44	-	-	-
Indirect taxes	0.99	-	-	-
Other taxes	1.00	-	-	-
Elasticities to proxy base				
Corporate income taxes (CIT)	-	2.74	-	-
Personnal income taxes (PIT)	-	-	1.49	-
Indirect taxes	-	-	-	0.88
Other taxes	1.00	-	-	-

Source: IMF staff estimates.

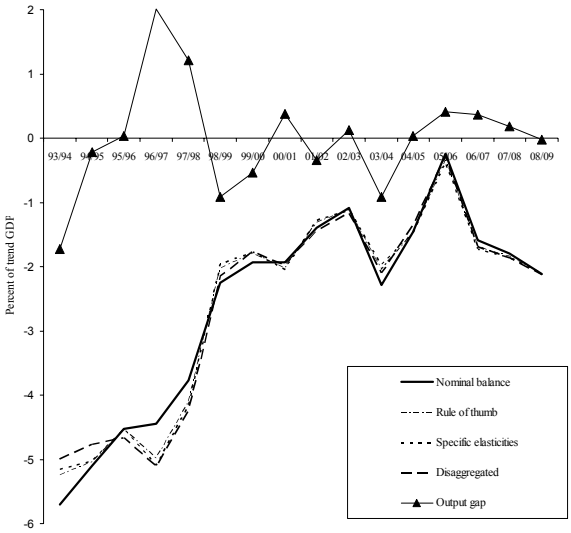
[15] See Girouard and André (2005).

D. CABs and Cyclical Balances

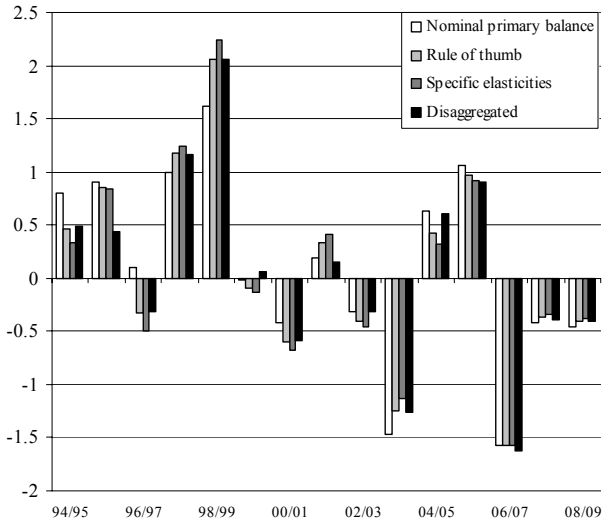
37. **The three alternative cyclical adjustment methods yield comparable levels of CABs** (Figure IV.6, left-hand panel). Given the relatively small size of the government sector in South Africa, these estimates are generally close to the nominal balances expressed in terms of actual GDP.[16] They confirm that the trend improvement in public finances over the last decade can be mainly attributed to discretionary adjustments rather than buoyant economic conditions. The only exception is FY 1996/97, when the mild fiscal tightening (0.1 percent of GDP) identified by the nominal primary balance actually masks a discretionary expansion of between 0.3 and 0.4 percent of GDP (Figure IV.6, right-hand panel). Changes in the cyclically adjusted primary balance also capture quite well the particularly strong consolidation effort undertaken between 1997/98 and 1999/2000, when spending cuts accompanied revenue gains. The shift towards strong primary spending growth initiated in 2000/01 also emerges clearly from the chart, including the expansion currently envisaged in the medium-term expenditure framework. Interestingly, the reductions in the deficit observed in 2004/05 and 2005/06 seem to be only partly related to the cycle in spite of the intent in the initial budget to implement expansionary policies.

Figure IV.6. Cyclically-Adjusted Budget Balances 1993/94-2008/09
(Percent of potential GDP)

Conventional budget balance (levels)



Change in primary balances



Sources: National Treasury and IMF staff estimates.

[16] Total expenditures of the national government represent close to 28 percent of GDP. The fact that tax policy has aimed at enlarging the tax base while lowering tax rates may also have dampened somewhat cyclical influences on the budget.

38. **Nominal and cyclically adjusted balances tend to converge near the end of the sample period,** in line with the limited deviations of GDP and of its components from their respective HP trend. The results are robust to the different output gaps corresponding to alternative medium-term growth scenarios (Table IV.6). Discretionary policy seems to be only slightly less contractionary in 2004/05 and 2005/06 under the slow growth scenario. Again, this reflects the fact that the magnitude of automatic revenue stabilizers is proportional to the size of the government, so that only significant variations in the output gap cause meaningful variations in CABs.

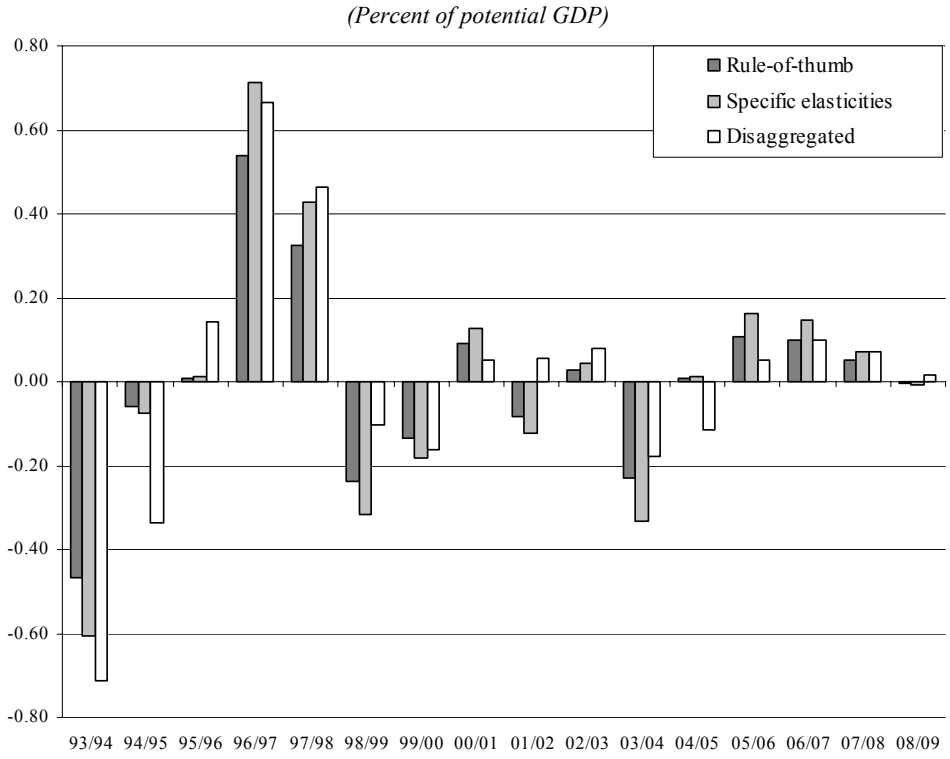
Table IV.6. Rule-of-Thumb CABs Under Alternative Growth Scenarios (2004/05-2008/09)
(Percent of potential GDP)

	2004/05	2005/06	2006/07	2007/08	2008/09
Output Gap					
Baseline	0.04	0.41	0.37	0.18	-0.02
Growth acceleration	-0.06	0.10	0.06	-0.16	-0.04
Slow growth	0.36	0.90	0.37	0.01	-0.25
Cyclically adjusted balances					
Baseline					
Overall balance	-1.47	-0.34	-1.69	-1.84	-2.11
Primary balance	1.97	2.94	1.37	1.00	0.59
Change in primary balance	0.43	0.97	-1.57	-0.37	-0.41
Growth Acceleration					
Overall balance	-1.45	-0.26	-1.61	-1.75	-2.10
Primary balance	1.99	3.01	1.44	1.09	0.60
Change in primary balance	0.46	1.02	-1.57	-0.36	-0.49
Slow growth					
Overall balance	-1.55	-0.47	-1.69	-1.80	-2.05
Primary balance	1.90	2.83	1.37	1.04	0.65
Change in primary balance	0.37	0.93	-1.46	-0.33	-0.39

Sources: National Treasury, South African Reserve Bank, and IMF staff calculations.

39. **One important dimension of the present analysis is the attempt to better capture the cyclicality of tax revenues in South Africa** by applying different elasticities for broad revenue categories. In comparison to the rule-of-thumb approach, using specific tax elasticities to the output gap slightly increases the absolute value of the cyclical balance because estimated CIT and PIT elasticities are greater than 1 (Figure IV.7). The disaggregated approach sometimes gives fairly different results, reflecting sizeable composition effects, and in particular, the impact of GOS gaps on cyclically adjusted CIT revenues (see below).

Figure IV.7. Cyclical Balances Under Alternative Cyclical-Adjustment Methods (1993/94-2008/09)

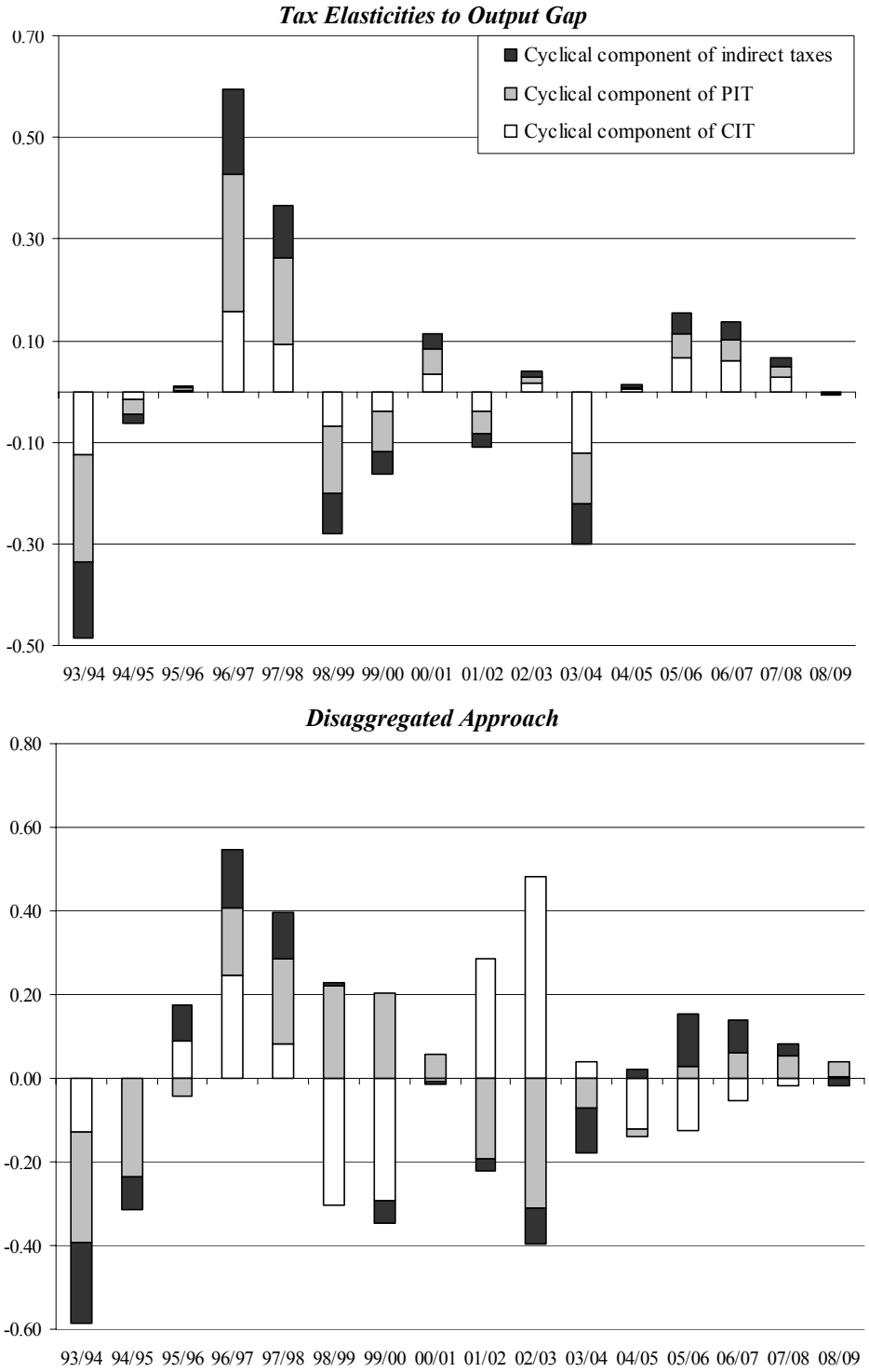


Source: IMF staff estimates.

40. **Decomposing the cyclical balance into the three main tax categories shows that they contribute fairly evenly to the cyclical sensitivity of the budget, although the contribution of CIT has increased** (Figure IV.6). This indicates that the higher elasticity of CIT makes up for its smaller, but growing, share of total revenues (Table IV.2). Applying the disaggregated method illustrates the impact of composition effects on the determinants of the cyclical balance. Specifically, the recent, atypical pattern of GOS gaps—partly driven by exchange rate fluctuations—tended to offset other cyclical influences on revenues. The impact of strong private consumption growth on indirect taxes also emerges clearly in 2004/05.

Figure IV.8. Decomposition of the Cyclical Balance by Tax Categories (1993/94-2008/09)

(Percent of potential GDP)



Source: IMF staff estimates.

41. **To assess the contribution of the business cycle to revenue performance, it is also useful to look at changes in the contributions to the cyclical balance** (Figure IV.9 and Table IV.7). The following conclusions emerge from the analysis:

- The total contribution of cyclical developments to revenue performance rarely exceeded 0.5 percent of GDP.

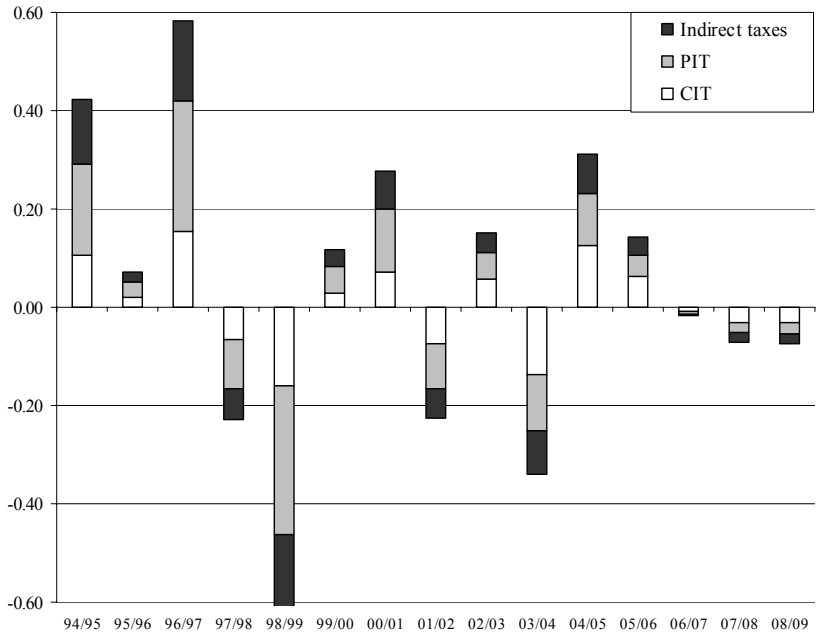
- The remarkable tax revenue outturns in FY 2004/05 and 2005/06 (about 1½ percent of GDP in additional revenue each year) seem to be largely independent of cyclical developments, especially so in 2005/06. PIT performance is most closely related to the cycle, with between a third and a half of the cumulative revenue increase attributed to above-potential GDP growth (Table IV.7). In contrast, because only about a quarter of the cumulative revenue gains on indirect taxes and CIT can be attributed to the cycle, these gains seem to be mostly structural or due to one-offs. These conclusions are generally robust to the higher output gaps estimated under the slow-growth scenario, although the size of the cyclical component increases mechanically. Notice in particular that more than half of CIT performance and the entirety of PIT gains in 2004/05 are then be attributable to the effects of the cycle.

- As the current cycle matures, and barring significant one-offs, any reversal in revenue performance should remain limited, and in any case should not exceed a cumulative 0.2 percent of GDP over the period covered by the medium term expenditure framework. However, that figure doubles if the slow-growth scenario (3 percent a year over the medium term) materializes. This shows that forward-looking assessments of the downside revenue risk should be interpreted as a lower bound because output gaps are likely to be underestimated.

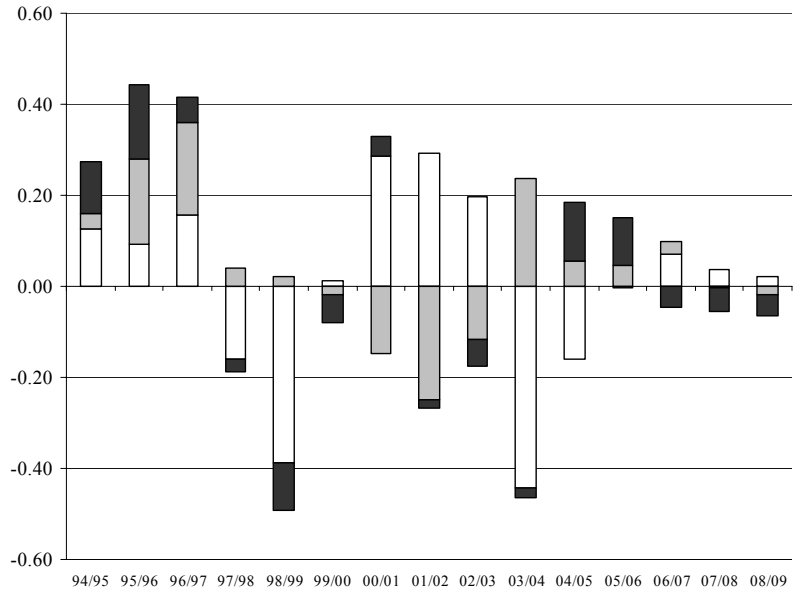
42. **Unless the extent of the current cyclical upswing is very seriously underestimated, these results suggest that the exceptional tax buoyancy observed over the last two fiscal years can be better understood by assessing, using the Revenue Service's microeconomic data, the contribution of compliance efforts, especially in the corporate sector.** Indeed, conventional cyclical adjustment methods ignore changes in the actual tax bases. Also, a better understanding of the informal sector's contribution to tax revenues (mainly through indirect taxes) would be useful. Even though the disaggregated approach captures fairly well the real consumption boom accompanying the current cycle, more than three-quarters of the increase in indirect tax revenues cannot be explained by cyclical developments (Table IV.7). That said, cyclical revenues may well have to be significantly revised in the future as the picture of the current cyclical position of the economy becomes clearer. In the future development of cyclical adjustment tools for South Africa, it would be critical to work with more accurate proxies for the tax bases and to refine estimates of tax elasticities, notably by applying methods based on actual features of the tax code and detailed data on revenue distribution.

Figure IV.9. Changes in the Contributions to the Cyclical Balance(1993/94-2008/09)
(Percent of potential GDP)

Tax Elasticities to Output Gap



Disaggregated Approach



Source: IMF staff estimates.

Table IV. 7. Cyclical Determinants of Revenue Performance (1994/95-2008/09)

(Percent of GDP, except for ratios)

	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Change in actual revenues (1)															
PIT	0.51	0.03	0.28	0.40	0.51	0.00	-1.18	-0.48	-0.73	-0.19	0.13	0.26	-0.35	0.17	0.18
CIT	0.20	0.01	0.17	-0.15	-0.07	-0.07	0.64	1.19	0.47	0.05	0.28	0.87	-0.02	-0.06	0.01
Indirect taxes	0.09	-0.19	-0.22	0.22	0.09	-0.10	-0.32	-0.04	-0.13	0.45	0.70	0.38	0.35	-0.22	-0.10
Using the disaggregated method															
Change in cyclical revenues (2)															
PIT	0.03	0.19	0.20	0.04	0.02	-0.02	-0.15	-0.25	-0.12	0.24	0.06	0.05	0.03	0.00	-0.02
CIT	0.13	0.09	0.16	-0.16	-0.39	0.01	0.29	0.29	0.20	-0.44	-0.16	0.00	0.07	0.04	0.02
Indirect taxes	0.11	0.16	0.05	-0.03	-0.10	-0.06	0.04	-0.02	-0.06	-0.02	0.13	0.10	-0.05	-0.05	-0.05
Ratio: (2)/(1)															
PIT	0.07	5.63	0.72	0.10	0.04	4.94	0.12	0.52	0.16	-1.28	0.43	0.18	-0.08	-0.03	-0.11
CIT	0.62	12.12	0.91	1.05	5.40	-0.18	0.45	0.24	0.42	-8.86	-0.57	0.00	-4.19	-0.64	2.17
Indirect taxes	1.31	-0.85	-0.25	-0.12	-1.20	0.64	-0.13	0.50	0.44	-0.05	0.18	0.27	-0.13	0.23	0.46
Using specific tax elasticities to the output gap															
Change in cyclical revenues (3)															
PIT	0.18	0.03	0.26	-0.10	-0.30	0.06	0.13	-0.09	0.06	-0.11	0.11	0.04	-0.01	-0.02	-0.02
CIT	0.11	0.02	0.16	-0.07	-0.16	0.03	0.07	-0.07	0.06	-0.14	0.13	0.06	-0.01	-0.03	-0.03
Indirect taxes	0.13	0.02	0.16	-0.06	-0.18	0.03	0.08	-0.06	0.04	-0.09	0.08	0.04	0.00	-0.02	-0.02
Ratio: (3)/(1)															
PIT	0.37	0.96	0.93	-0.25	-0.60	-15.72	-0.11	0.19	-0.08	0.62	0.82	0.17	0.02	-0.12	-0.13
CIT	0.53	2.50	0.91	0.43	2.21	-0.44	0.11	-0.06	0.12	-2.74	0.45	0.07	0.44	0.53	-3.36
Indirect taxes	1.51	-0.11	-0.75	-0.28	-2.09	-0.34	-0.24	1.58	-0.30	-0.19	0.12	0.10	-0.01	0.09	0.19
Using specific tax elasticities to the output gap (slow growth scenario)															
Change in cyclical revenues (4)															
PIT	0.18	0.03	0.26	-0.10	-0.31	0.05	0.13	-0.09	0.06	-0.10	0.14	0.07	-0.06	-0.04	-0.03
CIT	0.11	0.02	0.15	-0.07	-0.16	0.03	0.07	-0.08	0.06	-0.12	0.17	0.10	-0.09	-0.06	-0.04
Indirect taxes	0.13	0.02	0.16	-0.06	-0.18	0.03	0.07	-0.06	0.04	-0.08	0.11	0.05	-0.05	-0.04	-0.03
Ratio: (4)/(1)															
PIT	0.37	0.95	0.93	-0.25	-0.61	-14.45	-0.11	0.19	-0.08	0.54	1.07	0.25	0.19	-0.24	-0.17
CIT	0.53	2.49	0.91	0.44	2.24	-0.41	0.11	-0.07	0.13	-2.41	0.59	0.11	5.16	1.02	-4.40
Indirect taxes	1.51	-0.11	-0.75	-0.29	-2.11	-0.31	-0.23	1.61	-0.31	-0.17	0.15	0.14	-0.14	0.16	0.25

Sources: National Treasury, and IMF staff estimates.

E. Implications

43. **Because cyclically adjusted balances allow for a more accurate assessment of policymakers' discretionary actions, they can usefully contribute to public debate on the appropriateness of fiscal policy.** In particular, they can help policymakers to explicitly incorporate demand-management considerations into formulation of fiscal policy, thereby reducing the risk of procyclical policies.

44. **Estimating CABs is challenging,** particularly in a rapidly changing economy like South Africa's where assessing the business cycle is, more than elsewhere, an art rather than a science, and where it is difficult to establish stable relationships between economic and fiscal developments. Besides, the quality of available data affects the quest for reliable estimates, and much remains to be done to properly capture the sometimes subtle dynamics implied by tax collection procedures.

45. **Given those challenges and the corresponding uncertainty about estimated CABs, it is not advisable to use them as an explicit fiscal target.** However, the results in this chapter suggest that a consistent set of CAB estimates can be obtained for South Africa, using different methods and measures of the output gap. Because they provide additional information on the policy stance, it would therefore be useful to publish CABs on a regular basis in budget documents, along with a discussion of the cyclical influence affecting fiscal performance, and of the contribution of fiscal policy to macroeconomic stability. A simple and transparent cyclical adjustment method seem preferable to more sophisticated refinements. Using specific elasticities of broad tax categories to the output gap seems to achieve a reasonable balance between transparency and the information contents of CABs. That approach also has the advantage to be directly comparable to the approach of many countries and international organizations.

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Appendix

46. The HP-filtered series $\{X_t^*\}$ is obtained by minimizing a quadratic objective function that balances the need for the trend series to remain reasonably close to the original one (first argument in equation (9)) while exhibiting only limited variations in its growth rate (the smoothing objective captured by the second argument in (9)). Formally, $\{X_t^*\}$ minimizes:

$$\sum_{t=1}^{T}\left(X_t - X_t^*\right)^2 + \lambda\sum_{t=2}^{T}\left(\left(X_t^* - X_{t-1}^*\right) - \left(X_{t-1}^* - X_{t-2}^*\right)\right)^2 \qquad (9)$$

where X_t and X_t^* are expressed in natural logarithms.[17]

47. Implementing the HP filter requires an appropriate choice of the smoothing parameter, λ. If that is close to zero, the smoothed series converges to the actual one: changes in X_t are mostly attributed to the trend and the filter does not allow for much of a cycle. In contrast, $\lambda \to \infty$ yields an almost linear trend because the filter heavily penalizes variations in the growth rate of X_t^* and thereby allows for possibly very long cycles to be deemed "cyclical." Hence, the choice of λ very much reflects the analyst's view of the "typical" length of an economic cycle in a given economy (Morh, 2006).

48. There is a vast literature on the appropriate value for λ (see Röger and Ongena, 1999, for a survey). While there is broad agreement that $\lambda = 1600$ is appropriate for quarterly data, the recommended values for annual data vary between the 3-5 range (Pedersen, 2001) and 100 (Hodrick and Prescott, 1997). In line with the suggestion of King and Baxter (1999), this paper retains the conventional $\lambda = 1600$ for quarterly data[18] and uses $\lambda = 10$ for annual data. This implies that cycles lasting up to 8 years will be fully attributed to the cyclical component of the filtered series and longer cycles will be deemed structural (i.e., capturing acceleration and deceleration in potential growth) and incorporated into the trend $\{X_t^*\}$.[19]

49. **Another important practical issue in implementing the HP filter is the end-point bias.** HP filtering amounts to deriving the trend series $\{X_t^*\}$ as a moving weighted average of actual observations with symmetrically distributed and decreasing weights (King and Rebelo,

[17] See Hodrick and Prescott (1997).

[18] Ravn and Uhlig (2002) argue that this would imply a value as low as 6.5 for annual data.

[19] The more common assumption of 100 implies that the filter would fully accommodate cycles of up to 16 years, which seems a rather liberal definition of a cycle (Röger and Ongena, 1999).

1993). In finite samples, the distribution of weights becomes highly asymmetric at the end points; excessively large weights are attributed to extreme observations. The calculated trend values at the extremes of the sample are therefore artificially close to actual observations, and the cyclical component of the series is correspondingly underestimated. To alleviate end-point bias, it is common to complement the sample with forecasts, even though a substantial bias seems to remain (see Mohr, 2006).

V. Integration of South African Banks in sub-Saharan Africa—Regulatory and Stability Implications[1]

A. Introduction

1. **The consolidation in South Africa's banking sector through mergers and acquisitions has resulted in the emergence of large and complex financial institutions with cross shareholdings and operations that span sectors and borders.** These conglomerates are now rapidly expanding their banking operations into sub-Saharan Africa (SSA) as part of a wider trend of South African institutions courting influence in the region. The expansion into the region presents opportunities for these conglomerates to expand their markets and to diversify their risk while concurrently increasing competition and efficiency in the host countries' financial markets. However, their expansion also has regulatory and stability implications, including potential for abuse of dominant market positions, moral hazard, and regional contagion.

2. **This chapter discusses the penetration of the South African financial conglomerates into SSA and assesses the extent to which the potential vulnerabilities they introduce are mitigated by existing oversight arrangements.** The review focuses on the banking sector operations and references to securities and insurance is only made to the extent that it has direct relevance to the discussion. The analysis is based on annual reports of the banks, other public reports, and discussions with commercial bank officials and regulators.

3. **The main conclusion of the review is that South African conglomerates currently present limited stability risks for the region.** Nevertheless, there is scope to enhance the supervision of cross border operations, to accelerate implementation of regional initiatives to harmonize supervisory practices and strengthen financial infrastructures; and to establish ex-ante mechanisms for addressing regional crises.

4. **The structure of the chapter is as follows:** Section II discusses salient issues about financial conglomerates in general, including their corporate structures, the risks they present and international practices for mitigating those risks. Section III analyzes the characteristics of South African financial conglomerates and the pattern of integration, with a view to shed light on the nature of the risks they can pose. Section IV reviews the regulatory and supervisory framework for banking operations in South Africa and in the host African countries, in order to provide perspectives on the adequacy of the regulatory oversight. Section V discusses the benefits and challenges that the expansion of these financial conglomerates presents for regional financial stability and identifies policy options.

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[1] Prepared by Inutu Lukonga (MFD).

B. Financial Conglomerates: Structure, Risks, and Supervision

5. **Financial institutions with cross-sector and cross-border operations are becoming a common feature of financial systems world wide.** The liberalization of capital and foreign exchange markets has facilitated greater integration of financial markets across jurisdictions and increased competition. To remain competitive or simply to survive in a rapidly evolving environment, financial institutions have had to revise their business strategies. One of the strategies pursued has been the creation of diversified financial groups, now commonly termed "Financial Conglomerates" or "Large and Complex Financial Institutions (LCFI)".

6. **These financial groups provide opportunity for reaping economies of scale and for revenue diversification. However, the size and complexity of their operations present challenges for risk management.** The three most common models for conglomerates are the integrated, the parent-subsidiary and the holding company (see Box V.1, at the end of the chapter). Each of the models has its own strengths and weaknesses, but in practice mixtures of the basic models in one and the same group frequently occur. However, irrespective of the structure adopted, their sheer size and the complexity of their operations reduces transparency and increase risks of regulatory arbitrage, contagion, moral hazard, conflict of interest, and abuse of economic power (see Box V.2)

7. **To manage the risks effectively, management need to understand the full scope of the group's risks and the regulators need to supervise the entities on a consolidated basis.** The management of the financial groups need to determine the acceptable level of risk for the group, establish systems and controls to measure and monitor the risks and ensure that there is adequate capital at the group level. Supervisors, on their part, need to supplement the solo approach to supervision with group wide consolidated supervision that encompasses qualitative and quantitative assessments of the group and its constituents,[2] notwithstanding the unresolved challenges in implementing consolidated risk management and supervision (see Box V.3 for issues on the latter).

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[2] Consolidated supervision facilitates the assessment of the overall exposure and effective capital position of the group, the distribution of exposures across the groups and the extent of possible contagion. Qualitative assessments enable supervisors to ascertain the adequacy of the systems and controls to mitigate the risks being taken, help prevent regulated entities from using corporate structures to circumvent prudential supervision, and facilitate the identification of incipient problems.

C. Regional Integration of South African Financial Conglomerates[3]

Characteristics of the Conglomerates

8. **South Africa's financial conglomerates, which also dominate the domestic banking sector, are rapidly expanding their banking operations into Africa.** They include the Standard Bank Group (of which Stanbic is part), Amalgamated Bank of South Africa group (ABSA), Nedbank Group, FirstRand Group (of which First National Bank Limited (FNB) is part) and to a lesser degree, Investec Group. The five currently account for over 85 percent of South Africa's banking sector assets. These conglomerates also dominate the banking systems of the Common Monetary Area (CMA) countries and hold more than 10 percent of banking sector assets for the states of the Southern African Development Community (SADC).

9. **These conglomerates combine banking, securities trading, and insurance within single organizations and also have extensive cross-border operations.** Stanbic, ABSA, Nedbank and FirstRand have multiple holding companies, while Investec operates under a dual listed company structure (DLC), with separate legal entities that are managed by the same board of directors. The groups feature a complex web of ownership patterns that involves substantial cross-share holdings. The cross-border operations are not unique to Africa but include a broad spectrum of other regions, including the developed countries in Europe and North America and emerging market countries in Asia and Latin America (see Figures V.1-5).

10. **A distinguishing feature of the South African conglomerates has been the dominance of insurance companies as share holders.** While in most countries banks own insurance companies, in South Africa insurance companies own the banks (although this structure is undergoing change). Old mutual, South Africa's largest insurance company has a controlling stake in Nedbank and has significant shares in the Standard bank group. Until recently, Sanlam Life Insurance, one of the four largest insurance companies in South Africa held significant shares in ABSA[4] (see Table V.1). A number of the banks also have insurance subsidiaries in their groups. Linkages with insurance companies take a multitude of other forms as well, such as distribution agreements, credit exposures, and credit and operational risk transfer.

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[3] The terms "South African conglomerates," "South African banking groups," and "South African banks" are used interchangeably in this chapter and refer to the same institutions.

[4] Sanlam recently sold its shares to Barclays Bank.

Table V.1. Insurance Companies Share Holdings in Selected Banks, 2004
(percentages)

Insurance	Standard Bank of	ABSA	Nedbank	Investec
Old Mutual Life Assurance Co. (SA)	20.2	0.0	52.7	7.3
Sanlam Life Insurance Ltd.	5.4	22.7	0.0	3.4
Liberty Group Ltd.	4.9	0.0	0.0	1.8
Momentum Life Assurance Ltd.	1.0	0.0	0.0	1.6
Tota	31.5	22.7	52.7	17.3

Source: SARB, *Financial Stability Review*, March 2004.

11. **South African banks are sound and generally well managed with sophisticated risk management systems and good corporate governance structures.**[5] Capital adequacy ratios exceed regulatory requirements comfortably, profitability is high, impaired assets are very low and declining and banks apply a high standard of corporate governance. Nevertheless there are some concentrations on the lending side in households and the property market as mortgages account for 45 percent of total private sector credit. Also, the funding structure shows some concentration in short term wholesale deposits.

Table V.2. Selected Financial Soundness Indicators of Banking Groups, December 2005

Table 2. South Africa: Selected Financial Soundness Indicators for Financial Conglomerates, December 2005
(In percent, unless otherwise indicated)

	CA	NPL	ROE	RO
Standard Bank of South	14.2	1.2	25.2	…..
Amalagamated Bank of South Africa (ABSA)[1, 2]	11.7	2.2	25.5	1.68
Nedbank Group	12.9	1.7	15.5	0.93
FirstRand Group[2]	12.5	1.4	27.6	1.84
Investe [1]	15.5	1.0	23.6	…..
All	12.3	1.5	14.7	1.1

Source: Company Annual
Notes: CAR is abreviation for Capital Adequacy Ratio; NPL for Nonperforming loans; ROE for Return on Equity; and ROA for Return on assets.

[1] Figures are for end March 2005.

[2] Figures are for the banking group only.

[5] See for instance: FSAP reports of 2001 and the Update of 2002; Myburgh J. F. (2003); and Fitch Ratings (2003 and 2004).

Trends and Patterns of Integration

Trends

12. **The regional integration is asymmetrical.** While SA banks have rapidly expanded into the region, financial institutions from other parts of Africa have a very modest profile in South Africa. There are currently only three African financial institutions operating in South Africa, of which two are Nigerian banks (Union Bank and First Bank Nigeria).

13. **While the general trend has been for South African banks to increase their presence in SSA, Stanbic has pursued the most aggressive expansion strategy and now has operations in more SSA economies than other international banks.** Since its first African acquisition in 1988, Stanbic has managed to increase its operations rapidly. As of end 2005, it had operations in sixteen sub-Saharan African (SSA) countries. This compares with Standard Chartered's operations in thirteen countries, Citigroup with a presence in eleven and Barclays in nine.

14. **The other banking groups have moved more tentatively but they too are increasing their presence in the region.** Since 1998, ABSA has acquired operations in four countries bringing the total number of countries in which it operates to five by end-2005. FirstRand has restricted its reach to the Central Monetary Area (CMA) countries. Nedbank has operations in six countries and while Africa has not been its primary focus, declining expansion opportunities in the domestic market are leading it to look outward into SSA.[6] By contrast, Investec has been divesting out of Africa and currently operates in only two countries.

[6] Nedbank's African operations are small when measured by assets. Its recent sale of the minority stake in HSBC Equator and BNP Nedbank Mozambique has contributed to reducing its presence significantly. The partnership with HSBC in Equator Bank gave Nedbank a presence in 21 African countries.

Table V.3. South African Banks' Presence in Africa

	South African Banks					Other Traditional International Banks		
Sub-Saharan Country	Stanbic	ABSA	NedBank	FirstRand	Investec	Barclays	Standard Chartered	Citigroup
Angola		X						
Benin								
Botswana	X			X	X	X	X	
Burkina Faso								
Burundi								
Cameroon								X
Cape Verde								
Central African Republic								
Chad								
Comoros								
Congo DRC	X							X
Congo Republic								
Côte d'Ivoire								X
Equatorial Guinea								
Ethiopia								
Gabon								X
Gambia							X	
Ghana	X					X	X	X
Guinea								
Guinea-Bissau								
Kenya	X					X	X	X
Lesotho	X							
Madagascar	X		X					
Malawi	X		X					
Mali								
Mauritius	X		X	X	X	X	X	X
Mozambique	X	X	X					
Namibia	X	X		X				
Niger								
Nigeria	X					X	X	X
Rwanda								
São Tomé and Príncipe								
Senegal								X
Seychelles								
Sierra Leone							X	
South Africa	X	X	X	X	X	X	X	X
Swaziland	X			X				
Tanzania	X	X				X	X	X
Togo								
Uganda	X					X	X	X
Zambia	X					X	X	X
Zimbabwe	X	X				X	X	X
Countries excluding South Africa	**16**	**5**	**4**	**4**	**2**	**9**	**11**	**11**

Source: Company annual reports.

15. **The regional expansion has been achieved mainly through mergers and acquisitions rather than organic growth, thus the banks have quickly captured significant market shares.** Stanbic fast tracked its expansion with the acquisition in 1992 of the wholesale operations of Grindlay's Bank in six African countries. These have since been supplemented with purchases of other commercial opportunities, purchase of stakes in privatization deals of state banks, acquisition of other international banks and of other South African banks. ABSA increased its African operations mainly through the purchase of stakes in state bank privatizations. Nedbank expanded through acquisitions and strategic alliances.

16. **The strategies of the banks have varied, but generally there is a shift to a systematic and coherent pro-active strategy of regional expansion that includes the acquisition of controlling stakes**. Stanbic has consistently taken majority stakes in all of its SSA operations. ABSA and Nedbank were initially content with minority shareholding but

both have shifted their strategy in favor of taking controlling stakes.[7] FirstRand's strategy has deviated from the other banks and involves both conventional and nonconventional investments.[8] Investec on the other hand has not spelled out a specific strategy for the region.

17. **The banking subsidiaries of SA banks are concentrated in South Africa's major trading partners, many of which are in Southern Africa.** Stanbic is the only bank that has expanded it operations outside the SADC region to include operations in Nigeria, Ghana, and Uganda.

Characteristics of South African Banks' Operations in Africa

18. **The universal trend of the SA conglomerates has been to establish banking subsidiaries rather than branches.** The corporate structures of the subsidiaries are simple with no additional subsidiaries and few affiliate companies.[9] However, in countries with emerging capital markets, corporate structures are showing signs of increasing complexity. In Namibia, for instance, ABSA owns Capricorn Investment Holdings, of which Bank Windhoek is a subsidiary.[10] In Botswana, Stanbic Bank (Botswana) established a subsidiary that is licensed to manage a money market fund.

19. **These subsidiaries mostly offer plain vanilla banking services.** There are no sophisticated transactions like derivatives or structured deals, possibly reflecting the degree of market development in which the banks operate. Capital market products have been limited to the neighboring countries, such as Botswana, Namibia, and Swaziland.

20. **The business models are biased towards the wholesale segment of the market rather than retail.** While funding has been secured from increased deposit mobilization in domestic markets, the lending operations mainly serve to meet the funding requirements of South African firms that are expanding into the region. In addition, the high interest rates on government securities have provided profitable and low-risk investment opportunities. While there are signs of a shift towards large branch networks that would suggest a retail focus, retail lending is yet to develop and the credit card market remains untapped.

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[7] Nedbank also tended to settle for strategic alliances, besides the minority shareholdings.

[8] In this context, FirstRand recently invested in a private equity fund. The equity fund is focused on building retail banking networks primarily acquired through privatization in Africa. FirstRand also acquired Coplay in Zambia which provides a mobile banking service between users.

[9] Old Mutual, one of the insurance companies with substantial shareholding in the banks, has operations in Namibia, Zimbabwe, Malawi, and Kenya.

[10] ABSA has a minority stake of 34 percent in Bank Windhoek.

21. **Risk management functions in some of the banks has been centralized, as a result of which the managerial structure of the banks could deviate from their legal structures.** Stanbic has two service hubs in Ghana and Botswana that are linked to 13 African countries in which it has operations. Internal audit is centralized and the Head Office visits the subsidiaries on a regular cycle to undertake audits and assess risks.[11] Similarly, the back office processes for two of ABSA's African banks are connected by satellite and run out of Johannesburg where full monitoring takes place. Nedbank's regional operations leverage off the South African division for skills and systems platforms.

Balance Sheet Structure and Performance of the African Operations

22. **The banking operations in SSA are reported to be sound and profitable, although declining interest margins and the strong rand during 2005 reduced profit levels.** The operations continue to trade profitably, driven by steady growth in low cost and stable retail deposits, commercial assets and improved operational efficiency. The banks are also well capitalized with capital adequacy ratios exceeding the statutory required levels.

Table V.4. South Africa: Profitability of African Operations (ROE)

	2000		2002		2004		2005	
	Group	Africa	Group	Africa	Group	Africa	Group	Africa
Standard Bank	22.4	30.4	20.3	27.4	24.2	29.1	25.2	27.4
ABSA	17.1	....	12.9	30.1	24.6	20.8	25.5	19.9
FirstRand National Bank [1]	25	....	25.1	....	26.1	30.2	27.3	35.5
Nedbank	17.1	....	14.9	....	18.7	15.4	19.7	15.6

Source: Company Annual Report.

[1] Africa is lumped together with other emerging markets.

23. **The banks have dominant market shares in many of the countries but the contributions of these subsidiaries to the groups' earnings is small.** In Namibia, Lesotho, and Swaziland the combined market shares of SA banks range between 60 and 90 percent of the banking system assets and deposits. For some of the other countries, the market shares range between 10 and 30 percent. By contrast, the combined contribution of the SSA operations to the group's earnings is small (10 percent) and more recently showed declines, despite the good operational performance (see Table V.6). The contributions of individual countries to group earnings is miniscule for the majority of the countries.

[11] The findings of internal audits are shared with the regulatory authorities in South Africa.

Table V.5. Market Shares of South African Banks in Selected Countries, December 2005
(Percent of total)

	Deposits	Assets
Angola	….	….
Botswana	….	….
DRC	….	….
Ghana	….	….
Kenya	2	2
Lesotho	63	88
Madagascar	….	….
Malawi	35	….
Mauritius	….	….
Mozambique	….	….
Namibia	84	85
Nigeria [1]	0	1
Swaziland	89	78
Tanzania	….	….
Uganda	30	27
Zambia	11	13
Zimbabwe	20	17

Source: Country authorities.
[1] Deposits account for 0.2 percent.

24. **The impact of SA banks on access to financial services in the host countries is ambiguous.** The balance sheets of South African banks exhibit notable exposures to domestic governments securities. Due to the high interest rates on government securities, it has been possible to turn profit simply by gathering relatively cheap deposits and using them to purchase relatively high yielding government bonds thereby obviating the need to enter the more risky retail market. Lending has been relatively limited and is focused on corporates, the bulk of which are reported to be to South African firms (see Table V.7).

Table V.6. Contribution of African Operations to Group Earnings
(Percent of total)

	2004	2005
Amalgamated Bank of South Africa (ABSA)	1.7	1.2
First Rand Group [1]	5.0	4.0
Nedbank	…..	…..
Standard Bank (Stanbic)	8.6	8.5
Investec	…..	…..

Source: Banks Annual Reports.
[1] Banking group only.

Table V.7. Balance Sheet Structure of South African Banks in Selected African Countries [1]
(Percent of total; as of December 31, 2005)

	Lesotho [1]	Zambia	Zimbabwe	Uganda
ASSETS				
Balances with banks abroad	16	19	17	10
Balances with local banks	19	4	0	1
Marketable securities	39	22	31	37
Private sector loans	15	36	6	26
Other	11	19	47	26
LIABILITIES				
Deposits	65	67	67	79
Due to banks abroad	3	8	0	0
Due to local banks	19	3	0	2
Other	13	22	33	19

Source: Country authorities.
[1] Figures for Lesotho are for the end of December 2004.

Prospects

25. **The expansion of South African banks into SSA is poised to continue and has potential to significantly alter the financial landscape of the region.** The banks plan to increase the contribution of the African operations to their group earnings and are expanding to markets outside the SADC region. Where the banks are minority shareholders, there are efforts to acquire controlling stakes.[12] The planned second phase of the ABSA/Barclays deal, if approved, will involve the takeover by ABSA of all of Barclay's African franchises. This take over will have implications not only for South Africa but for other African countries in which both Barclays and ABSA operate given the quantum increase in concentration.

26. **The corporate structures of South African banks and the services they offer are likely to increase in complexity**. ABSA has already indicated plans to use the Group's bank assurance model in all the markets served. There is also a trend towards establishing subsidiaries that offer capital market products as financial markets develop.

[12] The recent relaxation of exchange controls also gives local banks greater room to make acquisitions and fund existing operations and to provide capital for big ticket items. South African banks will be allowed to hold foreign assets up to 40 percent of their domestic regulatory capital, as part of the shift from the exchange controls to the prudential regulation of banks' foreign exposures. Non-African foreign assets will be restricted to 20 percent while African assets can constitute up to the full 40 percent.

Drivers of Regional Integration

27. **The expansion of South Africa's conglomerates has been driven both by market pressures and policy changes.** These factors which are inextricably intertwined mainly include: the democratization of South Africa; the higher returns from African operations; trade and financial liberalization in Africa; the expansion of South African corporates into the region; increasing competition in the domestic market; the regional initiatives; and improving macroeconomic environments and performance.

- **Domestic political developments and trade expansion:** The end of apartheid in South Africa resulted in the growing acceptance of South African institutions within Southern Africa. As companies expanded north, the South African (SA) banks with whom the banks had established long-term relationship followed.

- **Economic returns:** While the initial impetus for the expansion was to follow their customers, the banks have also found that doing business in Africa is profitable in its own right. While the risk is there, the margins and returns on equity are high (often in double digits) and contrast significantly with the more mundane single-figure returns that banks get in the developed markets of Europe.

- **Deregulation of African economies:** The democratization of South Africa coincided with the relaxation of controls in the foreign exchange and capital markets in SSA, thus permitting the increased regional and international participation in local financial activity. Within the broad framework of liberalization, factors such as privatization, the seeking of joint ventures and technical partnerships with larger firms and the need for assistance in recapitalization have provided ad hoc opportunities for foreign investment and offered a channel for global banking groups to acquire prime indigenous banks.

- **Improved macroeconomic environment and performance:** SSA countries have improved their macroeconomic performance markedly over the past decade. Generally, better financial indicators coupled with financial sector reforms have helped build investor confidence. In countries that previously faced political instability, more sustainable economic growth patterns are emerging as political environments become more stable and direct investors become more attuned to the opportunities that Africa can provide.

- **Domestic competition:** Traditional banking in South Africa is increasingly getting saturated and areas of growth are increasingly becoming difficult to identify. To provide higher returns for shareholders, major banks will need to find new expansion opportunities. Diversification of income sources is also important for the sustainability of the banks and there are profitable opportunities in Africa.

- **Regional initiatives:** SSA has become a natural expansion destination for SA banks. It is close with a relatively underdeveloped financial landscape and fits in with the government initiatives such as the New Partnership for Africa's Development (NEPAD).

- **Market development:** The degree of market development in the host countries appears to have influenced the nature of operations undertaken by SA banks. Subsidiaries that offer investment products have been confined to the neighboring countries where capital markets have begun to emerge.

D. The Regulatory Framework and Supervisory Practices

28. **South African banks are highly sophisticated and supervisory practices largely comply with international standards.** The financial sector offers a broad range of financial services, a skilled workforce, substantial capital resources, infrastructure and advanced technology. The FSAP also concluded that the banking system was well regulated, supervisory practices were largely in compliance with international standards and efforts were already underway to address shortcomings.[13] Preparations for Basel II are at an advanced stage and banks expect to comply with the implementation deadline of January 2008.

29. **The SSA countries into which the SA banks are expanding have also been strengthening their regulatory frameworks and supervisory practices, but the agenda for further action remains large.** Progress has varied across countries and much needs to be done to develop the information infrastructure (credit registries and accounting), capacity for consolidated supervision and creditor rights. Preparations for Basel II vary across the region, but the majority of the countries have not yet indicated their implementation plans.

South Africa's Supervisory Practices

30. **Regulation of South Africa's financial system is conducted on a sector-specific basis.** The Banking Supervision Department (BSD) in the SARB supervises the banks and the Financial Services Board (FSB) supervises and nonbanks including insurance companies, pension funds and exchanges.

31. **The regulations stipulate capital requirements, open position limits, and reporting requirements for intragroup and large exposures.** Minimum capital for banking groups is the greater of ZAR 250 million or 10 percent of risk-weighted assets calculated on a risk-based aggregation method. Advances to any counterparty exceeding

[13] The prospective FSAP update will provide an opportunity to revisit these issues in light of important developments in the industry in recent years.

10 percent of capital require the approval of the board of directors and amounts exceeding 25 percent require the registrar's approval. The aggregate amount of these counterparty lending (i.e., clustering ratio) cannot exceed 800 percent of the banks' capital. The maximum limit on the foreign currency net effective open position (NEOP) is 10 percent of capital. In addition, there are guidelines for corporate governance and financial groups are required to set up holding companies, for which the accounts are consolidated up to the holding company.

32. **Banks are supervised on a consolidated basis.** Consolidated supervision is applied to all South African banking groups which have to ensure that they are adequately capitalized in order to sustain both their banking and nonbanking operations. The entities subject to consolidated supervision are the bank controlling company, its subsidiaries, joint ventures, and companies in which the bank controlling company has subsidiaries or its subsidiaries have a participation.

33. **The BSD conducts both off-site and on-site supervision although the latter relies heavily on external auditors.** Supervision initially focused on off-site analysis of statistical information contained in the statutory returns. However, the approach has been broadened to include a much larger, and still growing, component of on-site supervision. This includes, *inter alia*, ongoing interaction and regular prudential meetings with the executive management and risk managers of banks, annual presentations to banks' boards of directors and trilateral discussions with the management, including the audit committee, and the external auditors of banks. There is also an increasing emphasis on regional co-operation and on internationally important issues such as corporate governance.

34. **However, despite efforts to integrate on-site supervision, there is in practice greater reliance on off-site supervision.** On-site visits are event driven and limited to those operations that are considered materially important. Currently, none of the African operations within the region are considered to be of material importance; thus the BSD has not conducted on-site visits on the African operations. Oversight of these operations is mainly through the off-site information requirements submitted through the group's head office and the internal audit reports conducted by the groups' internal auditors.

35. **Institutional arrangements have been set for the exchange of information and cooperation between domestic regulators but those with the supervisory authorities in SSA are yet to be established.** The SARB has concluded a Memorandum of Understanding (MOU) with the FSB and a lead supervisor for each group has been identified.[14] On the other hand, of the 17 countries in which South African banks operate, only two (Namibia and

[14] As regards local regulators, there is a well-established MOU with the FSB, and another was recently concluded with the Share Transactions Totally Electronic (STRATE), the electronic settlement system.

Mauritius) have an MOU for information sharing. Nevertheless, plans are already underway for the conclusion of a multilateral MOU with other members of the SADC.

36. **Ex-ante contingency mechanism for resolving regional crises do not exist and other financial infrastructures are just being developed.** SA is also still in the process of developing a deposit insurance scheme for domestic deposit taking institutions. An agreement was also reached in the context of the regional committees not to draft a harmonized standard on deposit insurance until South Africa had implemented its proposed scheme.

Issues in the Host African Countries

37. **There is a wide variance in the level and quality of oversight in SSA, but generally capacity to deal with risks posed by conglomerates is still limited.** Most of the host countries SSA do not yet supervise banks on a consolidated basis nor have they carried out a mapping to identify conglomerates in their jurisdictions. The potential problem posed by these regulatory gaps is mitigated by the fact that the SA banks have for the most part only established banking subsidiaries that do not have other subsidiaries or affiliate companies. This therefore obviates the need for consolidated supervision by local supervisors.

38. **Financial infrastructures remain underdeveloped in many of the SSA countries, although efforts are being made to address the deficiencies.** Credit registries that would facilitate assessment of borrowers' credit worthiness, are, with very few exceptions, either nonexistent or are still in the nascent stage. Deposit insurance schemes are just being developed and creditor rights are, with few exceptions, weak. Some of the countries have begun to adopt International Financial Reporting Standards but enforcement is still lagging in many of the countries.

39. **Access to financial services remains a problem but is receiving substantial attention.** The low access to financial services is also common across many of the SSA countries and the matter is now dominating national agendas.

Regional Initiatives

40. **The need for regional co-operation in the supervision of financial systems has already been recognized and a number of initiatives are underway to harmonize banking regulations.** In view of the importance of regional integration in Africa, regional committees have been established in the SADC region to promote and enhance bank supervision through adherence to and promotion of international supervisory standards; harmonization of banking legislation and supervision practices; implementation of the Core Principles for Effective Banking Supervision; anti-money laundering compliance and

combating of terrorist financing; and formulation of training programmes in conjunction with regional and international bodies.

41. **There are also efforts to harmonize aspects of the financial infrastructure.** Accounting and auditing standards are being addressed through membership in the steering committee of the Eastern, Central and Southern African Federation of Accountants (ECSAFA). Other issues being tackled include harmonization of provisioning standards. A number of SADC member countries have committed to adopting IFRS and IAS and are working towards their introduction.

E. Benefits, Challenges, and Policy Implications

42. **The expansion of South African banks into the region has had a positive impact on South African banks and on the host countries' banking systems.** The expansion has enabled the South African banks to diversify their geographical risk to some degree and to access cheaper retail deposits. The host countries, on the other hand have benefited from increased competition and improved technologies in their banking systems. In particular, the strong financial position of the SA African banks has enabled these banks to provide effective competition to the traditional international banks that previously dominated the region. The SA business model which has generally entailed the alignment of banking infrastructures and risk management practices with head office has also facilitated technology transfer.

43. **Nevertheless, the banks' operations in the region also present some challenges, some of which could have implications for regional stability.** These challenges also apply to other international banks in SSA, but some aspects are more accentuated for South African banks. The challenges arise mainly because of: (i) the operating environment in which cross border operations and supervision is undertaken; (ii) the dominant market position of the banks in both the home and host countries, which creates potential for moral hazard; (iii) the banks' intermediation patterns; and (iv) the substantial exposures of some subsidiaries to the parent company.

44. **The discussion below elaborates on the nature and significance of these challenges and the policy options to address them.**

Challenges

45. **South Africa has a complex, dynamic and innovative financial industry, thus skilled consolidated supervision and substantial resource availability is a constant imperative for regulatory adequacy.** The financial system is sophisticated with complex legal financial and business relationships among the various parts of the banking groups and substantial cross border operations. The SARB supervises the banking groups on a consolidated basis, but it has to constantly upgrade its regulatory framework to address

emerging risks due to the complexity of the ownership structure and operations, the concentration of the sector, the global reach of these banking groups and constant product innovation. This, therefore, places heavy demands on the supervisory resources.

46. **The *asymmetry in importance* of the South African banks' subsidiaries in the home and the host countries creates a gap in regulatory oversight that has potential implications for regional stability.** SA subsidiaries hold dominant market power in many of the SSA countries, but SSA operations contribute little to the groups' earnings. Therefore, from the groups' perspective as well as the home supervisor, SSA operations have limited material importance. The absence of on-site visits of subsidiaries in SSA by the home supervisor, the absence of information sharing arrangements, and the limited supervisory capacity in some of the host countries combine to present an important gap in regulatory oversight. The insolvency of the subsidiary, if it were to occur, could have system wide effects and significant social consequences in the host SSA country and the ensuing reputational damage could generate difficulties for otherwise sound institutions of the group in the region. Therefore, the parent company is likely to provide liquidity support to the subsidiary and financial problems of a subsidiary could impact the group.

47. **The dominant position of these banks and their subsidiaries in the home and host countries, respectively, amplifies the potential for moral hazard.** The five banks that have expanded into the region have dominant market shares in South Africa and their subsidiaries have dominant market positions in the many of SSA countries. The dual dominance could render them "too-big-to fail" in both the home and the host countries, thereby potentially creating incentives for both regulators to exercise regulatory forbearance.

48. **The intermediation patterns that focus on prime corporates and the government raise has raised concerns among the host countries about the banks' contribution to national economic development.** SA banks, like most other international banks, have tended to lend the domestically mobilized deposits to prime corporates and to invest in risk free government securities. Even within the corporate sector, lending has largely been to locally established SA corporates.[15] This business model which has enabled the SA subsidiaries to reap high profits without taking on much risk is now being scrutinized because of concerns about the limited contribution of the banks to domestic economic development. This uneasiness is heightened by the dependence of local SMEs on the banking system for funding due to the underdeveloped state of securities markets and the limited access of these SMEs to international funding. The growing concerns are evident from the

[15] While the recent increases in branch networks by some of the banks has the appearance of a shift in focus towards retail banking, these branches have mainly served to mobilize deposits from a wider segment of the population without necessarily providing lending facilities.

explicit access goals contained in the SADC Regional Indicative Strategic Development Plans (RISDP).

49. **The banks efforts to align commercial interests with national interests will, however, face important challenges due to inadequacies in the information infrastructures in host countries.** Banks have to balance the objective of increasing access to financial services and the need to maintain a strong balance sheet. Structural reforms to address deficiencies in the information infrastructure has been slow and many of the countries in the region are yet to develop credit registries or strengthen accounting practices. Progress in strengthening the insolvency regime and related judicial frameworks has equally been slow. These weaknesses limit the banks' ability to assess the credit worthiness of the borrowers or to extend credit secured by cash flows. Even where the registries have recently been established, it will take some time to catalyze lending since few clients would have established a credit history.

50. **South African banks could face increasing regulatory costs on account of timing differences in the implementation of Basel II across the region.** SA is currently scheduled to begin implementing Basel II by January 1, 2008. Therefore, the banks' subsidiaries in Africa will have to run parallel reporting systems for the local supervisors and the home supervisors.

51. **Regional contagion remains a possibility due to potential reputational risk and balance sheet exposures.** The balance sheets for some of the countries exhibit significant direct financial exposures between the local subsidiaries and the parent companies (see Table V.7). Even without direct financial links, a run on a parent or other subsidiaries in the region could contaminate other banks in the region as depositors/investors would see this as a negative signal of the overall strength of the bank. Insolvency in one of the countries could probably be localized through immediate support from the parent, but the failure of the parent group could have profound effects.

52. **Crisis management arrangements for cross border operations presents important challenges in light of the wide range of countries in which SA banks operate.** Ex-ante contingency plans are necessary to facilitate the efficient resolution of regional crises, if and when they occur. These arrangements require a clear assignment of roles for the home and host supervisors and agreement on burden sharing of the financial costs. Given the number of countries in which the South African banks operate, it may not be feasible or efficient to set up an ex-ante contingency mechanism with all the regulatory authorities.

Conclusions and Policy Implications

53. **South African banks currently present limited stability risks for the region. Nevertheless there is scope to enhance supervision of the banks' cross border operations; to accelerate implementation of regional initiatives to strengthen**

supervision and financial infrastructures in the region; and to establish mechanisms for addressing regional crises. Some of these could be achieved through bilateral arrangements but greater efficiencies may be reaped from coordination at the regional level. Specific actions in these areas that could be considered are detailed below:

- **Strengthening supervision of cross border operations:** On-site visits by the home supervisors would be the first best option, but the need to prioritize available resources may rule out this option. Therefore, strengthening of cooperation between home and host supervisors and sharing information on the banks' operations would yield important benefits. In this regard, it would serve the region well to sustain the momentum to conclude the multilateral MOU with SADC countries and to ensure that the provisions of the MOU are adequate in scope. Benefits would also be derived from the establishment of MOUs with non-SADC countries in which the SA banks operate.

- **Accelerating regional initiatives:** Stronger supervisory frameworks in the host countries will be key to ensuring regional financial stability. In this regard, it would be important to accelerate implementation of regional agreements. Priority could be given to the plans to harmonize the legal and regulatory framework for banking supervision; to build capacity to conduct consolidated supervision in the region; to develop credit registries and strengthen accounting frameworks; and reform the legal and judicial framework for insolvency to strengthen creditor rights. Actions in these areas would have the benefit of aligning commercial interests of banks with national interests to increase access to financial services.

- **Developing contingency plans for crisis management:** The large number of countries in which SA banks operate presents challenges for setting up contingency arrangements that involve all the parties. Nevertheless there is scope for developing detailed contingency plans for the handling of sub-regional financial system distress in the CMA where almost all the banks are of SA origin. For these countries, effort could be made to identify the information flows, resources, skills, procedures, and actions needed to resolve a regional crisis and to pre-assign responsibilities for required actions. For the other countries, specific provisions could be made in the cooperation agreements to specify the nature and process of the coordination.

Box V.1. Corporate Structure of Financial Conglomerates

The universal or integrated model

In the **integrated model,** financial services are offered by a single corporate entity. The main advantage of this structure is that it reduces costs as resources may be more easily shared among the various departments engaged in different activities. In practice, virtually no major country permits complete integration in the production of banking, securities, and insurance services, due to concerns of potential conflicts of interest, contagion, and lack of transparency.

The parent-subsidiary model

The **parent-subsidiary model** requires the parent and subsidiary to be separately capitalized. The structure is based on "ownership" or "control" of the subsidiary by the parent. Definitions of a parent vary but the term is often defined as a company which owns more than 50 percent of the shares in a legal entity. Supervisors generally prefer the broader concept of control, because parent companies may exercise substantial control over an undertaking, while holding less than 50 percent of the shares. This structure does not permit the synergies and diversification benefits of the integrated model to be fully realized. However, **tax consideration**s and the **limited liability protections** that subsidiaries enjoy make this corporate structure attractive, even when universal banking is permitted. In many countries, tax laws allow subsidiaries to enjoy tax benefits that would be lost if income were calculated on a consolidated basis. The benefits of *limited liability protection* are, on the other hand, more in principle than in practice because even if a parent is not legally required to bail out a subsidiary, the potential for reputational risks will exert pressure on it to do so. Also, parent companies have been declared liable for their subsidiaries' debts on the basis of representation, deficient capitalization, de facto directorship, or negligent acts.

The holding company model

Under the **holding company model** a top company, often a "nontrading shell" without its own operational activities, controls specialized subsidiaries. Common group functions, such as risk management, capital raising and allocation, IT and group auditing, are usually centralized at the holding company level. Thus, while this structure makes it easier to isolate the different business streams of the group and evaluate each company on a stand-alone basis, group entities may be rendered incapable of operating independently because of the centralized functions, and this could complicate their later divestiture.

Box V.2. Motives and Risks of Financial Conglomerates

Motives

Operational synergies. Conglomeration presents important opportunities to reap scale economies. Offering multiple products facilitates better utilization of the distribution capacity, cross selling of products can result in enhanced revenue generation and by offering "one stop shopping" a financial conglomerate can better preserve and expand its relationship with a customer while complementarities in the activities create opportunities for information sharing and leveraging of customer data bases and reputation.

Diversification: By engaging in several lines of business, a financial conglomerate can reduce the volatility of its income that is caused by sector specific events while geographical revenue diversification can mitigate a slowdown in the home market.

Risks

Regulatory arbitrage: Since conglomerates are managed on a group-wide basis, transactions may be booked in certain entities or deals may be generated to exploit regulatory differences between sectors and across national borders. Even in cases where regulations addressing such exposures exist, complex corporate structures make it much more difficult for supervisors to identify violations of the regulation. Practices that have attracted supervisory attention include "double gearing," which involves the use of the same capital by two or more regulated entities in the group, and "excessive leveraging," which entails the issuance of debt by a parent which is then downstreamed in the form of equity to regulated entities of the group.

Contagion: Financial groups are susceptible to contagion as problems can be transmitted within the group through intra-group transactions and reputational effects. Intragroup transactions include capital holdings, loans, guarantees, and cross-default provisions. Reputational effects arise because investors and depositors associate the subsidiary with the parent. Thus, difficulties in one member send a negative signal about the rest, as a result of which the problems of an affiliated and possibly unregulated entity in the group can trigger a withdrawal of funds by depositors from a regulated bank, which could lead to impairment of the bank's liquidity and capital. Market pressure may therefore lead a parent company to support an ailing subsidiary even when parent may have no legal obligation to support the subsidiary, as a result of which losses in one subsidiary could impact the rest of the group.

Moral hazard: The problem of moral hazard arises for a variety of reasons. First, conglomerates may become so large that they may be perceived as "too big to fail" by market participants and this expectation that public authorities would intervene may stimulate risky behavior. Second, the risk tolerance of entities could increase because of the expectation that other group entities would provide finance in the event of financial distress. Third, nonregulated entities may gain access to a bank's safety net ,such as deposit insurance and lender-of-last-resort facility, when financial support by a parent to these groups affects regulated entities that end up drawing on these facilities.

Conflict of interest: Decisions that may be acceptable from a group-wide perspective could have negative implications for the bank as a stand-alone entity. In many mixed activity holding companies, a "captive" bank can be seen as an important funding source for other group entities. This may result in excessive concentrations in the bank's portfolio and substantial intragroup exposures that increase the risk profile for the bank. The parent company may also induce the bank to lend to ailing affiliates or to lend at lower interest rates that reduce margins or may drain capital and funds from the bank by requiring excessive dividends and fees, that are later downstreamed to failing affiliates to prevent insolvency.

Abuse of economic power: Financial conglomerates can lead to greater market concentration, less competition, and ultimately a less efficient financial system. The lack of competition can in turn have a negative effect on innovation. The concentration of economic power may also result in groups that are "too big to discipline."

Unsupervisable corporate structures: The size and complexity of the financial conglomerates can render it difficult for markets and supervisors to obtain an accurate picture of its structure and risk profile. Often, the managerial structure of conglomerates deviates from the legal structure through practices such as reporting according to business lines, geographical areas or matrix structure and this presents some challenges for supervision which tends to be national in scope. Also, due to the interaction between different group entities, the risk of a conglomerate can be larger than the sum of the risks in the various entities on a stand-alone basis and intra-group transactions can be used or abused to transfer assets from one entity to another as a vehicle for cross subsidization. Overall, important risk positions may be built up which remain unnoticed because they are dispersed over many group entities while the groups' complex structures can also make a *work out* or winding down of an ailing conglomerate very difficult.

Box V.3. Supervision of Financial Conglomerates and Challenges

Conditions for Effective Consolidated Supervision

Effective consolidated supervision requires an enabling legislative framework and the enforcement of those powers. Supervisory authorities therefore need to: (i) have legal powers to conduct comprehensive consolidated supervision; (ii) apply prudential requirements and limits on banking groups, in addition to those applied on an individual basis.; (iii) assess consolidated group accounts and the solo accounts; and (iv) evaluate the groups managerial and organizational structure, management capacity and adequacy of the systems and controls. The most common prudential requirements applied on a consolidated basis are those pertaining to capital adequacy, large exposures to a single borrower or borrower group, connected lending, and intra-group transactions.

Increased cross-border linkages also require cooperation, coordination, and harmonization of rules. Home and host supervisors need to work together to ensure effective oversight. For cooperation and information sharing to be effective, each supervisor should be equipped with strong risk assessment capability, clear prudential regulations, and the ability to take remedial actions. Structures are also needed both at the national and international levels for information sharing arrangements and coordination between domestic regulators and both the home and host country supervisors. Such coordination and cooperation issues are usually codified in a Memorandum of Understanding (MoU).

There is also need for contingent strategies and capacity to address potential crises and contagion. Specific provisions should be made in the cooperation agreement concerning how information would be shared in a crisis. Crisis management needs to be coordinated. Ex-ante structures to deal with the crises have to be in place and tested.

Challenges

Capital adequacy: Capital is not fully fungible in the group. For instance the required capital supporting insurance business cannot be raided to make up for deficiencies in the bank.

Accounting practices: Banking groups operating across multiple jurisdictions could face difficulties in consolidating their accounts because the financial accounts for different group entities may be prepared according to different accounting standards, unless these entities are required to prepare a reconciliation to parent company accounting standards as well. The establishment of International Accounting Standards (IAS) will help mitigate this problem substantially but the problem remains in so far as enforcement lags.

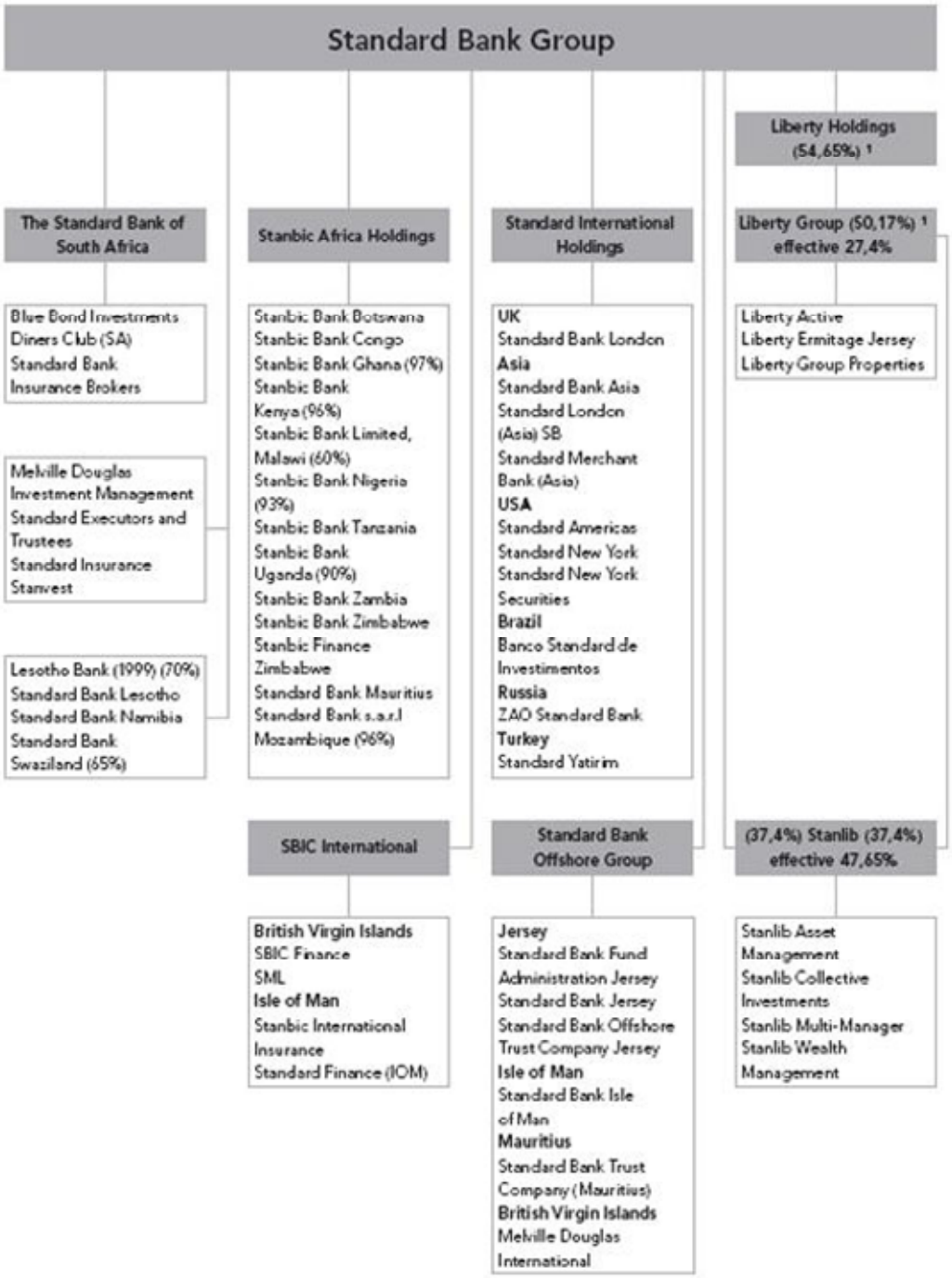
Capital adequacy: There is still no consensus on how a uniform consolidated capital adequacy requirement can be applied to financial groups. Most jurisdictions exclude insurance companies in the consolidation of accounts.

Crisis management: Where financial conglomerates operate in several jurisdictions, even if there is potential for regional contagion, establishing ex-ante contingency mechanisms for multiple countries may present considerable practical challenges.

Lender of last resort: The lender of last resort for financial conglomerates with cross-border exposures can be challenging. If an unwinding of exposures is required due to failure of one or more components of the conglomerate, the implicit financial commitments for the lender of last resort can be enormous and the sharing of the responsibility to prevent systemic banking crises becomes complex.

Supervisory information sharing and co-ordination: Even besides the challenges posed by complexity of structures, effective supervision will require coordination and information sharing with countries that may be governed by different privacy rules. Also, given the amount of confidential information normally involved in the supervision of financial institutions, the development of adequate information sharing and supervisory co-operation programs can be challenging.

Figure V.1. Standard Bank Group Corporate Structure



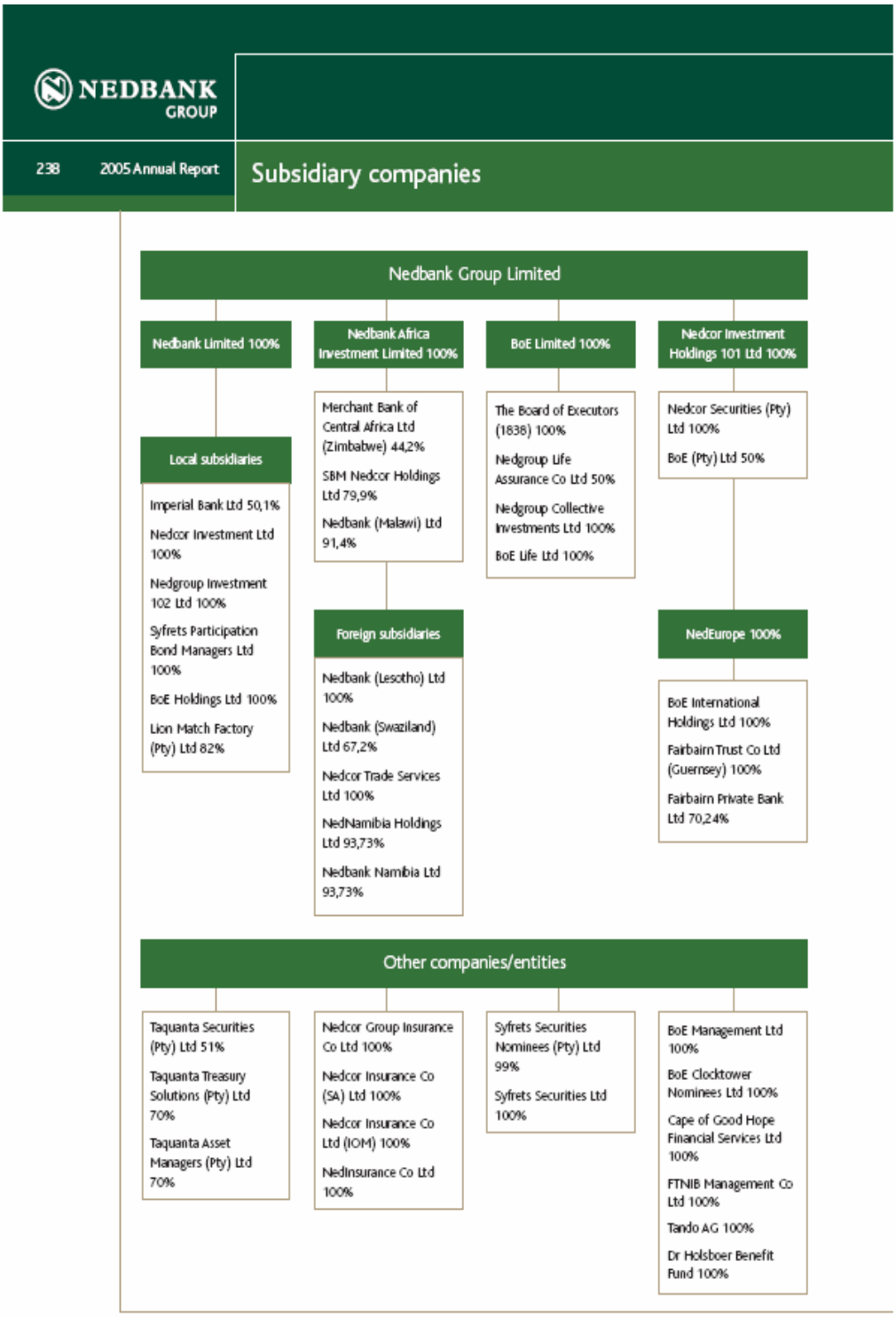
Source: Standard Bank Group 2005 Annual Report.

Figure V.2. ABSA Group Structure

** Amalgamated Finance Limited ceased operations subsequent to 31 March 2005.
*** A 50% holding in Banco Comercial Angolano was acquired in April 2005.
****On 29 May 2005 the 25,9% shareholding in Commercial Bank of Zimbabwe Limited was transferred to CBZ Holdings Limited. After conversion Absa' s investment is 24,9%.
Personal Banking sales became operational in April 2005.

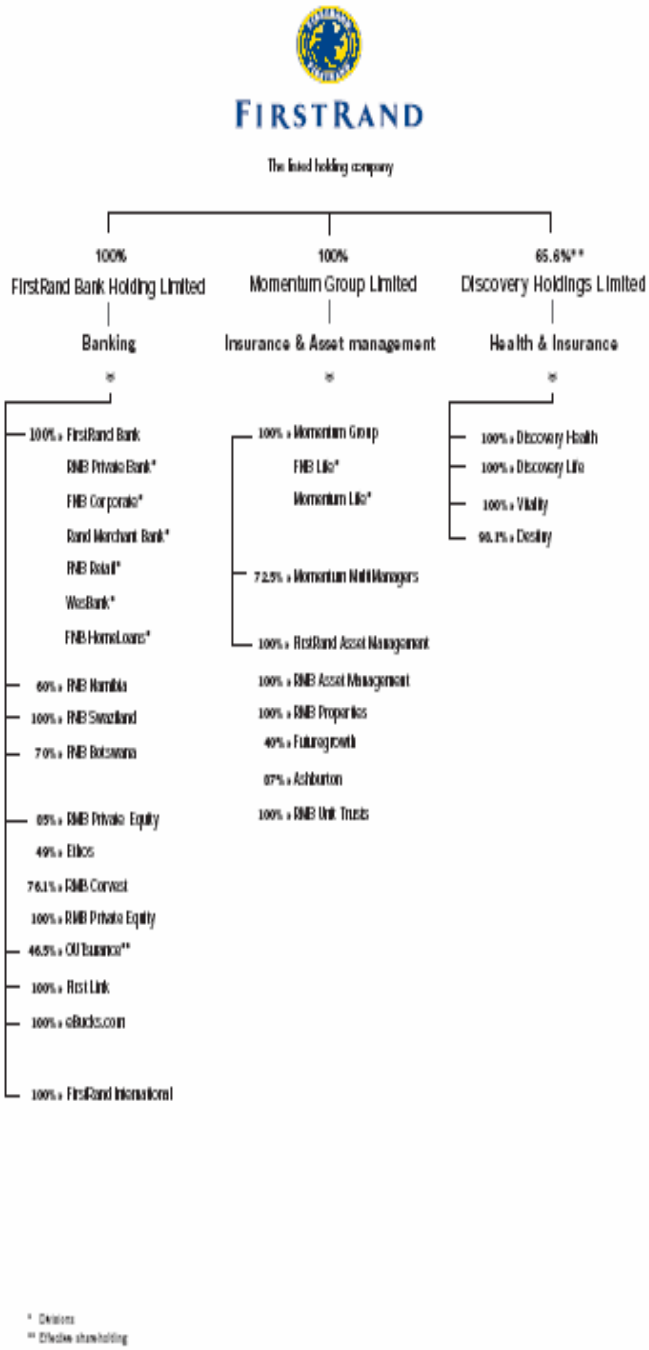
Source: ABASA Group 2005 Annual Report.

Figure V.3. Nedbank Group Corporate Structure



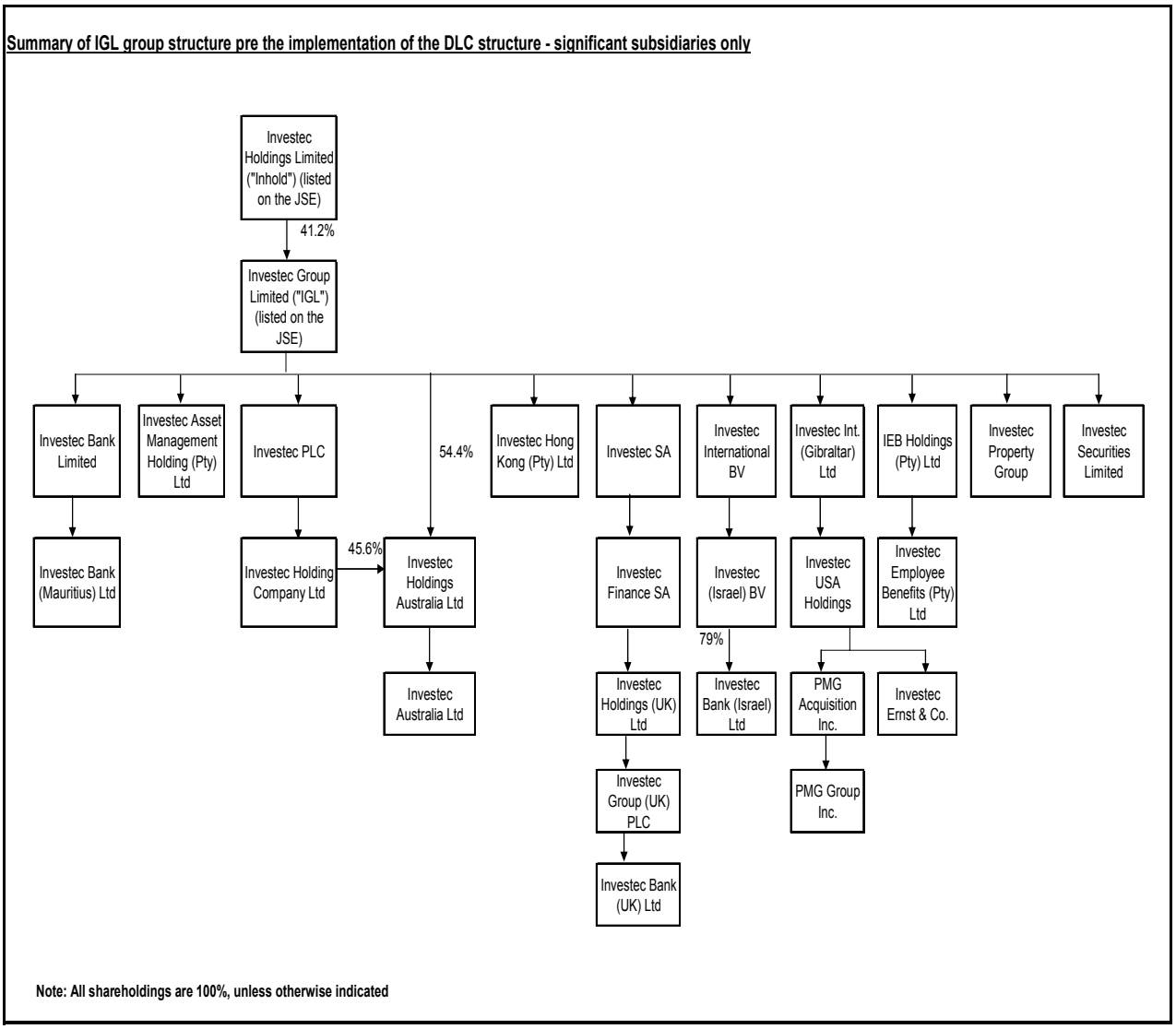
Source: Nedbank Group 2005 Annual Report.

Figure V.4. FirstRand Group Structure



Source: FirstRand Bank Group 2005 Annual Report.

Figure V.5. Investec Bank Group Structure



Source: Investec Bank Group 2005 Annual Report.

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SOUTH AFRICA: TAX SUMMARY AS OF JUNE 2006[1]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
1. Taxes on income, profits, and capital gains			
1.1. *Individual income tax* Income Tax Act No. 58 of 1962, as amended	A central government tax is charged on taxable income, assessed as gross income less exemptions and deductions, received by South African residents on their worldwide income, with relief for the avoidance of double taxation.[2] Nonresidents working in South Africa for short periods are liable for tax in South Africa, in respect of their South African source income, with relief for the avoidance of double taxation. As of February 2006, comprehensive agreements for avoidance of double taxation on the same income were in force with (or applied to) 57 countries, with agreements under (re)negotiation or in the process of signing or ratification with 33 other countries. Cash allowances and noncash fringe benefits are subject to taxation according to formulas, including employer-owned vehicles, interest free or low interest	*Exemptions* are the first R 16,500 of taxable interest and dividends for taxpayers under 65 years of age and R 24,500 of taxable interest for taxpayers age 65 and over. Dividends from resident companies received by residents and nonresidents are generally exempt from tax. Foreign interest and foreign dividends are only exempt up to R 2,500 out of the total exemption. Interest is exempt where earned by nonresidents who are absent from South Africa for 183 days or more per annum and who are not carrying on business in South Africa. Other exemptions include: (i) benefits payable under the Unemployment Insurance Act, and (ii) leave gratuities on retirement/retrenchment up to R 30,000. *Deductions* are allowed for (i) Annual contributions to pension and retirement funds (the greater of R 1,750 or 7½ percent of remuneration from retirement funding employment);	For the year of assessment ending February 28, 2005, the following applies: Tax thresholds: Below age 65: R 40,000 Age 65 and over: R 65,000 Rebates (deductible from normal tax determined on taxable income): Primary rebate: R 7,200 Additional rebate: R 4,500 (persons 65 years and older). Tax is calculated on the taxable income of any person under 65 years of age in accordance with the table below: Taxable Annual Income (In Rand) / Marginal Tax Rates (In percent) / Average Tax Rates (In percent) 0 to 40,000 / 0 / 0 40,001 to 100,000 / 18 / - 100,001 to 160,000 / 25 / - 160,001 to 220,000 / 30 / -

[1] Updated by X. Debrun, Fiscal Affairs Department, July 2006. For further information, see http://www.sars.gov.za or http://www.treasury.gov.za.

[2] The worldwide basis for income taxation was introduced from January 1, 2001.

Tax	Nature of Tax	Exemptions and Deductions	Rates
	loans, and residential accommodation. Wage and salary earners are subject to withholding at the source (pay-as-you-earn, PAYE). Income tax returns must be submitted at the end of the tax year for salaried persons whose net remuneration is in excess of R 60,000. From March 1, 2002, directors of private companies were made subject to PAYE, according to a formula for withholding. Standard Income Tax on Employees (SITE) falls under the PAYE system; SITE is applicable to net remuneration up to R 60,000 for taxpayers who do not receive travel allowances or any other income. SITE taxpayers are not required to submit income tax returns. In the case of other individuals, provisional payments are required in two half yearly instalments. Provisional taxpayers with a taxable income exceeding R 50,000 may make a third voluntary payment. Individuals below the age of 65 who earn taxable nonemployment income of less than R 10,000 a year are not required to register for provisional tax purposes. Individuals age 65 and older are not required to register for provisional tax purposes, if their annual taxable income consists exclusively of remuneration, interest, dividends or rent from the lease of fixed property and is R 80,000 or less. Pensions from South African sources are subject to income tax, with the exception	(ii) Arrear pension fund contributions (up to a maximum of R 1,800 per annum; any excess over R 1,800 may be carried forward to the following year of assessment); (iii) Retirement annuity fund contributions (up to the greater of 15 percent of nonretirement funding income or R 3,500 less current deductions to a pension fund, or R 1,750. Deductions for arrear retirement annuity contributions are permitted as in (ii)), (iv) Medical expenses: monthly caps for tax-free medical scheme contributions; deduction of medical expenses capped at 7.5 percent of income. Deductions are unlimited for taxpayers over 65 years of age or handicapped. (v) Donations to approved nonprofit organizations (up to 5 percent of taxable income before deducting medical expenses). Allowances are made in respect of subsistence and traveling allowances and advances.	220,001 to 300,000 35 - 300,001 to 400,000 38 - 400,001 + 40 A separate rate of 40 percent applies to trusts, other than special trusts. A special trust is a trust created solely for the benefit of a person who suffers from any mental illness or a serious physical disability.

Tax	Nature of Tax	Exemptions and Deductions	Rates
	of pensions of war veterans and certain disability payments. Pension fund administrators are required to withhold tax at the source (PAYE). Annuities, rental income, and royalties are taxable. The tax year runs from the first day of March to the last day of February.		
1.2. *Capital gains tax* Income Tax Act No. 58 of 1962, as amended	Capital gains on the disposal of assets are subject to income tax (Schedule 8 of the Income Tax Act).[3] Events that trigger a disposal of assets include a sale, donation, exchange, loss, death and emigration. Nonresidents are subject to capital gains tax on South African real estate and shares in companies holding South African real estate.	Exclusions include: a gain of up to R 1.5 million from the sale of a primary residence; most personal use assets, such as motor vehicles, furniture and collectibles; proceeds from an endowment policy or life insurance policy; compensation for personal injury or illness; and prize winnings from a South African competition (e.g., the national lottery).	For the taxation of capital gains of individuals and special trusts, 25 percent of the net capital gain is included when calculating the tax payable (after deducting the annual exclusion). For companies, close corporations and trusts, 50 percent of the net capital gain is included. The taxable gain is included in taxable income. With these provisions, the maximum *effective* rate of the tax is: Individuals 10 percent (i.e., 40 percent maximum income tax rate, applied to 25 percent of net capital gains) Companies 15 percent Trusts 20 percent
1.3. *Corporate income tax* Income Tax Act No. 58 of 1962, as amended	A central government tax levied on the worldwide taxable income derived by South African resident companies, with appropriate relief to avoid double taxation. Taxable income is defined as gross income, other than capital receipts	Deductions include normal operating costs, Government's cash grants, interest, and depreciation allowances but exclude dividends and capital expenditure. Small businesses are exempted from tax on the first R 40,000 of income.	a. *Non-gold mining companies*: 29 percent of taxable income. Nonresident companies, carrying out trade through a branch or agency within South Africa, are taxed at a rate of 34 percent. These companies are not subject to the Secondary Tax on Companies (see 1.4), in

[3] The capital gains tax became effective on October 1, 2001.

Tax	Nature of Tax	Exemptions and Deductions	Rates
	and exempt income, less allowable deductions and set off of losses. The tax year of assessment is the accounting year. Companies with taxable income in excess of R 20,000 are required to make two provisional tax payments in respect of each year of assessment. The first payment is made within six months after the commencement of the year of assessment, the second at the end of such year, and an optional third payment within a period of seven months from the close of such year for companies with a February year end. In all other cases the third payment will be due within six months after the close of the tax year. As of February 2006, comprehensive agreements for avoidance of double taxation on the same income were in force with 57 countries, with agreements under negotiation or in the process of signing or ratification with 33 other countries. Limited agreements for the avoidance of double taxation on profits derived from sea or air transport are also in force with four countries. Gold mining companies are subject to special tax provisions.	Depreciation allowances of non-mining companies vary according to type of asset, life expectancy, and intensity of use of assets. Generally, the straight-line method is used. Plant and machinery used in a process of manufacture, including aircraft and ships used by a taxpayer in the carrying on of his trade, may be written off on a straight line basis over five years. Farming machinery may be written off at 50 percent 30 percent, and 20 percent over three years. An accelerated allowance for new machinery and manufacturing assets acquired after March 1, 2002 is provided for, according to a 50:30:20 schedule. Accelerated depreciation for oil and gas drilling. Deduction for current R&D expenditure is 150 percent. Qualifying small companies are eligible for immediate write-off of all plant and machinery in the year in which it is brought into use. Small items up to R 5,000 are also subject to immediate 100 percent depreciation. Depreciation allowances are allowed for certain permanent structures: industrial buildings and hotels – 5 percent a year; airport service facilities — 5 percent a year;	respect of dividends. b. *Employment companies:* 34 percent c. *Qualifying small businesses (turnover below R 14 million)*: 0 percent of taxable income up to R40,000; 10 percent of taxable income between 40,001 and R 300,000 and 29% of taxable income in excess of R300,000. d. *Gold mining companies*: Formula-based tax rate determined in accordance with one of the following: (a) Where the company is not exempt from the secondary tax on companies (STC): $y = 35 - (175 \div x)$ or (b) where the company is exempt from the STC: $y = 45 - (225 \div x)$ In the formula y is the tax rate and x is the profit-to-revenue ratio. e. *Oil extraction companies*: taxed at normal rate. f. *Long-term insurance companies*: 29 percent tax is levied on income derived from company policies as well as on income derived from policies held by individuals. g. Income derived from pension and retirement funds: The net rental and gross interest of

Tax	Nature of Tax	Exemptions and Deductions	Rates
		electricity transmission lines, telephone transmission lines and railway lines – 5 percent a year; pipelines for transporting oil and gas – 10 percent a year. Taxpayers investing in designated depressed urban areas receive special accelerated depreciation allowances for construction (20 percent in the first year, 5 percent per year for the subsequent 16 years) or refurbishment of buildings (20 percent straight line over five years). Capital expenditure is allowable as a deduction from income of all types of mines in the year of assessment during which it is incurred (immediate expensing), limited, however, to the annual mining working profit. Any unutilized capital expenditure may be carried forward to the next year as unredeemed capital expenditure. Cost of land, mineral rights, mining rights, servitude, etc., are not deductible. An assessed loss can be carried forward indefinitely but cannot be carried back. Learnership allowances as tax deductions to promote on-the-job-training: an initial allowance of R 20,000 per existing employee, and an additional R 30,000 on completion of the learnership.	pension, provident, and retirement annuity funds are taxed at a rate of 9 percent (“Retirement Fund Tax”). Foreign dividend payments received by the funds from property unit trust schemes are also subject to the 9% tax.

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.4. *Secondary tax on companies (STC)* Income Tax Act No. 58 of 1962, as amended	A central government tax payable on the net amount of dividends, i.e., the excess of dividends declared by the company over dividends accrued to the company during a dividend cycle.	*Exemptions* include: 1. Dividend payments of fixed property companies as defined in section 47 of the Collective Investment Schemes Control Act. These dividends are taxed in the hands of the recipient. 2. Dividends in specie in relation to approved unbundling transactions. 3. Dividends paid out by subsidiary companies to their holding company.	12½ percent
2. Social security contributions			
2.1. *Unemployment insurance contributions* Unemployment Insurance Contribution Act No. 4 of 2002.	A contribution collected for the Unemployment Insurance Fund, administered by the South African Revenue Service.	The maximum earnings amount subject to the tax is R 131,529 per year.	Employee and employer contributions of 1 percent each of the insured earnings, payable monthly by employers.
2.2. *Work injury insurance contributions*	A compulsory insurance scheme.	The maximum earnings amount subject to the tax is R 179,088 per year.	Insurance premiums vary with risk, according to 23 different classes of employers (i.e., sectors).[4]

[4] The average rate for 2002/03 was R 1.40 per R 100 of earnings.

Tax	Nature of Tax	Exemptions and Deductions	Rates
2.3 *Skills Development Levy* Skills Development Levy Act No. 9 of 1999, as amended	A compulsory charge on total remuneration paid by employers, earmarked to fund skills development. The levy is payable for PAYE-registered employers with an annual payroll in excess of R 500,000.	Exclusions include: amounts paid to independent contractors; reimbursed amounts; amounts paid for services rendered by directors of private companies. Partial rebates are available for training provided by employers from Sector Training and Education Authorities, which administer the skills development funds. The levy is a deductible expense for income tax purposes.	1 percent of payroll.
3. Taxes on property			
3.1. *Property tax* Municipal Property Rates Act No. 6 of 2004.	A municipal tax payable on the capital value of land and improvements to finance the cost of municipal services. The tax may be levied on residential, industrial, commercial, farm, state, and public service property and land owned by public benefit organizations. New property rate system based on market values to be phased in over 3 years. Old system currently still in place.	The rate is levied on the basis of market valuation in rand. Property valuation may be valid for a maximum of five financial years. The valuation of public infrastructure is discounted by 30 percent. Municipalities may exempt or provide reduced valuation to other specific categories of owners by use, location, or ownership, but not to specific property owners. Specific exemptions include: a. Mining rights. b. Property belonging to a land reform beneficiary (for 10 years after registry of deed). c. The first R 15,000 of the market value of a residential property. d. Property registered and used as a place of public worship. e. National parks.	Rates are set by municipal councils and differ across local governments. Annual increases in property rates may be capped by the national Minister of Provincial and Local Government, in consultation with the national Minister of Finance.

Tax	Nature of Tax	Exemptions and Deductions	Rates
3.2. *Estate duty* Estate Duty Act No. 45 of 1955, as amended	A central government tax payable on the estate of an individual. Property includes life insurance proceeds and lump-sum benefits received from pension or provident fund benefits. The estate of a deceased nonresident consists of only his or her South African assets. Agreements to avoid double estate taxes are in place with Lesotho, Sweden, the U.K., the U.S., and Zimbabwe.	Deductions include funeral and estate administration expenses; debts of deceased as at the date of death; donations to qualified nonprofit organizations; and property accruing to the surviving spouse. A single deduction of R 2,5 million is applicable.	20 percent
3.3. *Donations tax* Income Tax Act No. 58 of 1962, as amended	A central government tax payable by the donor on the cumulative value of property donated by residents.	Donations to spouses and to qualifying nonprofit organizations are exempt. Annual exemption limit of R 50,000 apply for legal and natural persons.	20 percent
3.4. *Transfer duty* Transfer Duty Act No. 40 of 1949, as amended	A tax payable on the purchase consideration or fair value (whichever is the greater) of transfers of real estate.	Exemption on the first R 500,000.	For natural persons, 5 percent on the value in excess of R 500,000 but under R 1 million plus 8 percent on the amount in excess of R 1 million. For legal entities, 8 percent of total value of property.

Tax	Nature of Tax	Exemptions and Deductions	Rates
4. Domestic taxes on goods and services			
4.1. *Value-added tax (VAT)* Value-Added Tax Act No. 89 of 1991, as amended	A central government tax levied on the supply of goods and services. VAT is collected at a single, positive rate, is *consumption-type* and allows full and immediate tax credit on capital and intermediate goods. VAT is based on a *destination principle* with exports zero-rated and imports taxed). An *invoice-based credit method is used,* with VAT calculated on sales and tax paid on the difference between VAT on sales and VAT on purchases, adequately supported by invoices. The registration threshold for the VAT is R 300,000 per year of turnover. Voluntary registration is available for vendors with turnover of more than R 20,000, but less than R 300,000 per year.	Main *zero-ratings* include (i) exports; (ii) several food items including brown bread, cooking oil, maize meal, milk, eggs, fruit, and vegetables; (iii) illuminating paraffin; (iv) petrol and diesel; (v) several agricultural inputs including seeds, feed, and fertilizers sold to VAT registered farmers; (vi) international transport services; (vii) municipal property rates; and (viii) grants by national and provincial governments to municipalities. Main *exemptions* include: (i) financial services (mainly interest); (ii) residential rents; (iii) passenger transport; (iv) educational services; (v) medical schemes and pension and life insurance benefits; (vi) medical services and medicines supplied by the state; and (vii) child care services. Threshold for small farmers and small four-monthly filers: R 1.2 million.	0 percent, 14 percent.
4.2. *Gambling taxes*	A provincial government tax levied on gambling, casinos and betting.		The schedule of fees and levies differ across provinces. - Casino license fees range from a flat rate of R 50,000 to R 114,000 for the basic license renewal. Additional amounts of about R 1,000 are charged per table, machine or employee. Levies on casino gambling revenue range from 5-12 percent and are levied on gross revenue. - Gambling machine operators tend to have lower flat-rate licenses but higher charges per machine and higher levies on income, ranging from 10-20 percent. - Bingo halls are charged per seat, and in

Tax	Nature of Tax	Exemptions and Deductions	Rates
			some cases per employee. The revenue levies range from 2.5-15 percent of income, net of amounts paid out to punters.
4.3. *Excise duties* Customs and Excise Act No. 91 of 1964, as amended	Central government taxes payable by the manufacturer or importer of certain commodities. Most are specific, though some ad valorem rates exist.	A rebate is granted on excisable goods that are exported or used by diplomatic representatives and on taxable goods used by producers in farming, forestry and the manufacture of taxable goods for industrial or commercial purposes.	*Alcoholic beverages:* Beer (excluding sorghum beer): 3,667.82 cents per liter absolute alcohol. Sorghum beer: 7.82 cents per liter. Sorghum powder: 34.7 cents per kilogram. Unfortified wine: 158.09cents per liter. Fortified wine: 287.88cents per liter. Sparkling wine: 465.58 cents per liter. Spirits: 5521.00 cents per liter absolute alcohol. Other fermented drinks: 183.38 to 365.35 cents per liter depending on the type. *Tobacco products:* Cigarettes: 278.04 cents per 10 cigarettes. Cigarette tobacco: 15,649.41 cents per kilogram. Pipe tobacco: 8261.93 cents per kilogram. Cigars: 148,515.70 cents per kilogram. *Fuels:* Petrol: 3.909 cents per liter. Diesel: 3.817 cents per liter. *5 percent ad valorem excise duty:* -- Office machines (excluding computers, photocopiers and printers, but including modems) and TV sets; -- Motorcycles (200-800 cc engines). *7 percent ad valorem excise duty:* -- Firearms; -- Perfumes and toiletries, except sun protection

Tax	Nature of Tax	Exemptions and Deductions	Rates
			products, aqueous distillates and aqueous solutions of essential oils; -- Video equipment, hi-fi equipment, optical lenses, photographic and cinematographic equipment (excluding film), except professional digital cameras.
4.4. *Fuel levy* Customs and Excise Act No. 91 of 1964, as amended	A central government levy on the sale of petrol, diesel, and kerosene mixtures.	A concession is made for diesel fuel sales to primary producers (agriculture, forestry and mining) of 40 percent (40 cents per liter) of the general fuel levy on 80 percent of diesel consumed. Fishing, coastal shipping, and offshore mining qualify for a 100 percent concession of the general fuel levy and Road Accident Fund (RAF) levy. Off-road freight transport (nonpassenger) qualifies for a full refund of RAF levy. Primary producers (agriculture, forestry and mining) also qualify for a full rebate of the RAF levy. Diesel power plants with a capacity of more than 200 MW benefit from a full rebate of the general fuel levy and the RAF levy.	Petrol: R 1.16 per liter[5] Diesel: R 1.00 per liter Distillate fuels and mixture of kerosene: R 1.11 per liter *Road Accident Fund levy:* An additional fuel levy of 36.5 cents per liter is collected on petrol and diesel for the Road Accident Fund.

[5] Fuel excise rates are from April 7, 2004.

Tax	Nature of Tax	Exemptions and Deductions	Rates
4.5. *Motor vehicle taxes* Customs and Excise Act No. 91 of 1964, as amended	A tax levied on the value of imported components used in the manufacture of duty payable motor cars, station wagons and similar dual purpose motor vehicles, excluding heavy duty motor vehicles and motorcycles.	Provision is made that the value of the imported components can be reduced by a duty free allowance as well as the value of imported rebate credit certificates. Customs duty is only payable on the remaining customs value.	36 percent as of January 1, 2004, with an annual reduction of 2 percent until it reaches 20 percent
	A customs driven program in terms of which the customs value of components imported for the manufacture of motor vehicles are liable to customs duty.		
	Ad valorem customs and excise duty which is applicable to imported as well as locally produced motor vehicles. Items (1) and (2) are applicable to motor cars, motor vehicles for the transport of ten or more persons of a vehicle mass not exceeding 1,600 kg., motor vehicles for the transport of goods of a vehicle mass not exceed 2,000 kg., or a GVM not exceeding 3,500 kg. or a mass not exceeding 1,600 kg. or a GVM not exceeding 3,500 kg. per chassis fitted with a cab and chassis fitted with engine of Heading No. 87.06 of a mass not exceeding 3,500 kg.		0.00003 times the value for ad valorem duty purposes, less 0.75 percent, with a maximum of 20 percent
	Heavy duty vehicles: certain components are liable to customs duty and the balance allowed under full rebate of customs duty.		Compression ignition engine: 20 percent Driving axles: 20 percent Gear boxes: 20 percent Cabs/bodies: 5 percent Pneumatic tires: 20 percent

Tax	Nature of Tax	Exemptions and Deductions	Rates
4.6. *Air passenger tax* Customs and Excise Act No. 91 of 1964, as amended	Central government levy on international air travel	Exemptions include: children under 2 years of age; passengers carried 'not for reward'.	R 120 on international travel to all destinations, except Botswana, Lesotho, Namibia and Swaziland where the charge is R 60.
5. Taxes on international trade transactions			
5.1. *Customs duties* Customs and Excise Act No. 91 of 1964, as amended	A one-column tariff schedule based on the Brussels nomenclature with general, most favored nation, and preferential rates of duty. There is a customs union (SACU) with Botswana, Lesotho, Namibia and Swaziland. There is a trade agreement with the European Union, which provides for progressive reduction and elimination of duties over 5-12 years from 1999, depending on the type of good. There is a trade agreement with other members of the South African Development Community (2000), which provides for a phased reduction and eventual elimination of duties over eight years.	Rebates are allowed for certain goods used in manufacture by approved industries (e.g., textiles, motor vehicle production) or by particular institutions and bodies. Duty free import is allowed once per person during 30 days for new and used goods up to R 3,000 per person with separate provisions for alcoholic beverages, tobacco and perfumes.	Import duties vary widely. There are nearly 50 tariff bands, and specific duties apply to certain meat products, fish, tea and textile products). Tariff rates generally fall within eight levels ranging from 0 to 30 percent, with a few exceptions, including clothing and textiles and motor vehicles. The import-weighted average tariff rate has been reduced from more than 20 percent to under 7 percent.

Tax	Nature of Tax	Exemptions and Deductions	Rates
6. Other taxes			
6.1. *Stamp duties* Stamp Duties Act No. 77 of 1968, as amended	Ad valorem or specific taxes payable on legal documents such as bills of exchange, bonds, leases, marketable securities, etc.	Most securities issued by certain public corporations and public authorities are exempt from stamp duty on issue and transfers. Where marketable securities tax is chargeable, brokers' notes do not attract stamp duty.	Rates of stamp duty vary for different instruments and also for a particular instrument. Examples are: 5 cents per R 100 for bills of exchange; and 0.25 cents per R 100 on registration of the transfer of share certificates.
6.2 *Uncertificated Securities Tax* Uncertificated Securities Tax Act No 31 of 1998.	Ad valorem tax of 0.25 percent on the issue of, and change in beneficial ownership in securities.	Lease agreements of less than R 500 are exempt from stamp duties. Government Departments and public benefit organizations that are exempt from income tax in terms of section 10 (1) (cN) of the Income Tax Act of 1962.	0.25 percent of the value of such securities.